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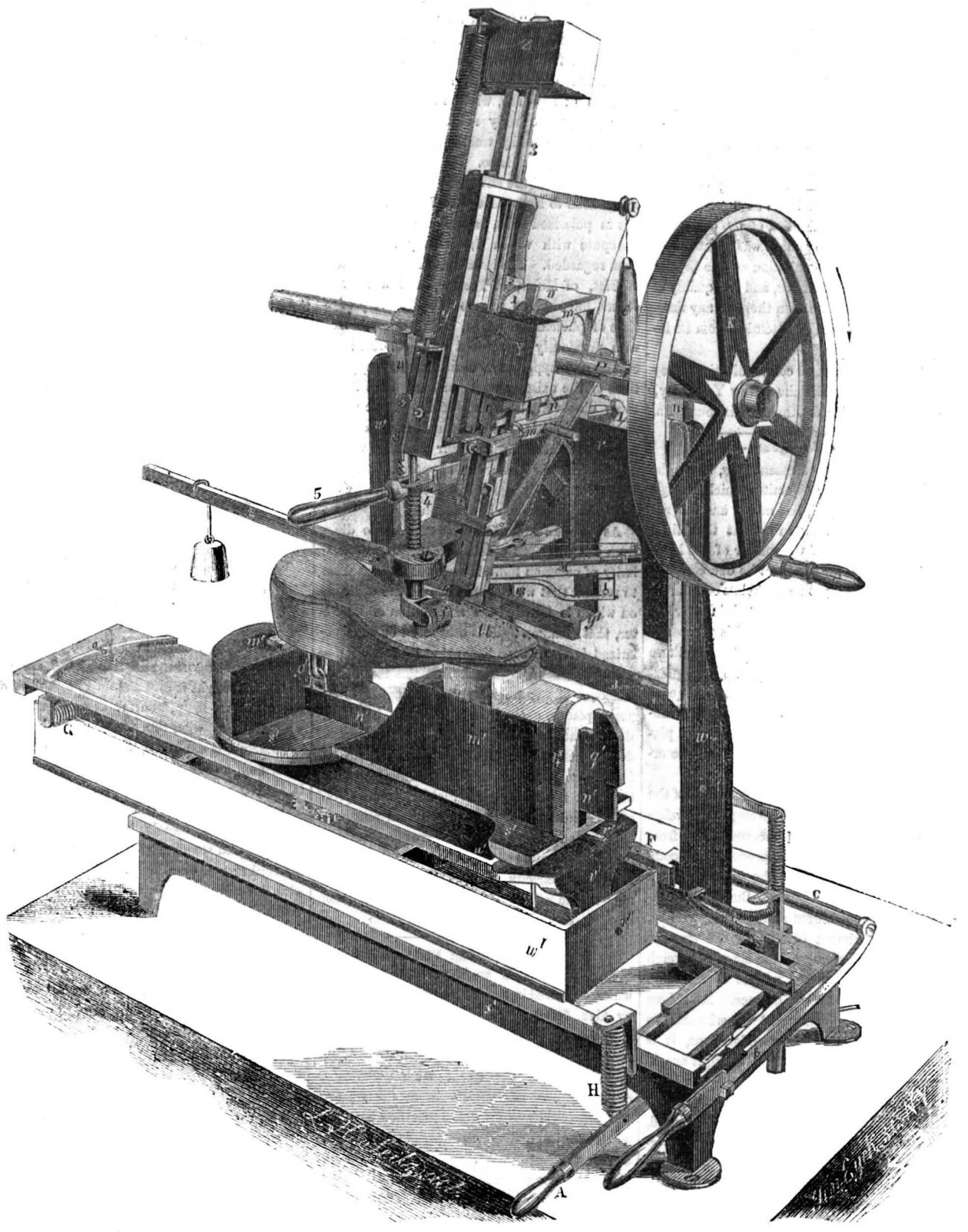
## Machine for Pegging Boots and Shoes.

## GALLAHUE'S PEGGING MACHINE.



The annexed engraving is a perspective view of a machine for pegging boots and shoes, for which a patent was granted to A. C. Gallahue, of Alleghany, Penn., now residing in this city, on the 16th of last August, and antedated February 18th. The boot or shoe is moved longitudinally and also vibrated, and presents a continual new surface for the pegs to be put in, by some of the most ingenious arrangement of machinery ever presented. This machine also cuts its own pegs. It pegs boots and shoes of any size or shape without guide patterns for that purpose; the shoe or boot in the machine being its own guide. It is easily adjusted to peg any kind of work.

We will first describe the motions of the article to be pegged. *u* is an inverted last of the common kind, on which is an upper and sole to form a shoe, *s*; *s'* is a turn table, and *m' m'* are blocks of wood on it; the last is secured on these by a hook, *o'*, catching into a staple in the lever, *n'*; *q'* is a wedge driven in through an opening in a yoke 4 *s*, on the top of lever, *n'*, and this binds the last with the shoe to be pegged, on it, firmly upon the blocks; *v'* is a rocking table, it vibrates on a rod *v''*, which extends from end to end; *w'* is a sliding trough carriage, which slides in guide grooves in the bed plate, *x'*. This carriage is moved by a cog wheel on the lower end of the vertical shaft, 13, which is driven by a section of a screw on the driving horizontal shaft, P. There are two racks on the other side of the carriage, *w'*, one extending nearly from end to end of it, the other about six inches long at the middle, in the gap of the large one, so that as the carriage is moving along it misses the long rack which feeds it forward, and the cog wheel takes into the short rack, which meshes into a pinion, N, on a short vertical shaft, which is the axis of the turn table; this gives the turn table a half revolution, and brings the heel—or the toe—of the shoe, under the pegging operation, so as to peg round the whole boot and shoe, thus giving a reversing motion to peg the sides and the heel and the toe of the shoe. The spring, *r'*, is a catch to prevent the turn table from swinging round while the sides of the shoe are being pegged, it is operated by a dog below to throw it out when the table is to be turned at one end, and it catches again to hold the table fast, as in *a'*, at the other end. The coiled spring, G, is attached to the underside of the turn table at one end, and at the other side to the carriage. Its tension is to act on the rocking table, *v'*, to make the shoe press against an adjustable guide gauge, set against the edge of the shoe sole, to guide the shoe to receive every peg correctly in the proper line and distance from the edge of the sole. H is another coiled spring attached to the lever, A, at one end, and at the other to a flange on the side of the bed plate; the lever, A, is attached to an upright bar on the other side, which has a catch upon it that descends when the carriage, *w'*, is fed forward, and comes over a cross bar attached to spring, D. This bar, when the carriage, *w'*, has passed over it, is drawn up and catches into a notch in the bottom of the said carriage, so as to hold it in that position until the turn table gets its half revolution; and while the heel or toe of the shoe is being pegged, the carriage, *w'*, is then freed from its catch bar, by a stub on the short rack spoken of, which throws the catch of spring, E, out of its detent, depresses the catch bar which holds the carriage, and allows it to feed forward the shoe, B; C is a coupling lever to throw the cog wheel heretofore described, on the shaft, 13, in and out of gear with the racks of the carriage.

PUNCHING AND PEGGING OPERATIONS.—*w w* are standards to support the top machinery; K is the fly-wheel; P is the driving shaft; J is a cross-brace; *u u* are two gate slides, and *r* is a plate which connects them; M is the peg wood hopper, in which the strip of wood, *h*, to be cut into pegs is placed; it is fed forward by a slide placed behind it, which is actuated by the weight, *e*, at one end of the cord which passes over the small pulley, I. There is a small wedge-shaped knife on the bar above the tube, *a*, through which the pegs are placed in the punched holes: when the said tube is drawn up by the cam on shaft, P, which strikes the projection, *m*, on a stirrup, a peg is cut from the strip of wood, *h*, and forced into the top of tube, *a*; this tube is then pushed sideways by a lever over the next punched hole in the sole of the shoe, and the driver, 18, then comes down and forces the said peg into the shoe, and so on continually. The driver, 18, has an arm and hammer head or weight, Y, on the top of it; this weight is made to slide up and down on the awl rod, 3, the lower part, *h'*, of which rod has a box for the reception of the punching awl. The driver, 18, is lifted by a cam on P, which strikes stirrup *n*, so as to raise the driver out of tube *a*, to allow the cut peg to be forced into it, and then the driver is struck down by another cam which actuates the hammer, Y. On the shaft, P, there is also a cam, for operating the punching awl, the motion of which precedes the pegging; this cam lifts horn 2 of rod, 3; the weight, Z, with the re-action of the springs, *f'*, (one on each side), drives down the awl in *h'*, alongside and before the tube *a*, thus making a hole for the peg. The actions of making the holes, cutting the pegs, and driving them in, are performed alternately, and repeated in procession, one after another, by cams (not seen) on the shaft, P.

There is a roller, *f*, on the foot of a small vertical spindle; this roller rests on the sole of the shoe to be pegged, and is elevated and depressed by the inequalities of the shoe sole; it also holds the shoe firm to the work of punching and pegging. This roller guides and controls the actions of the punching and pegging operations. Its spindle passes through a slot in the lever, 5, above the coiled spring, 4. This lever is retained in its place by notches in the rack bar, 8; *c* is a balance lever, with its fulcrum pin at 4 *f*, and secured at the other end by a joint

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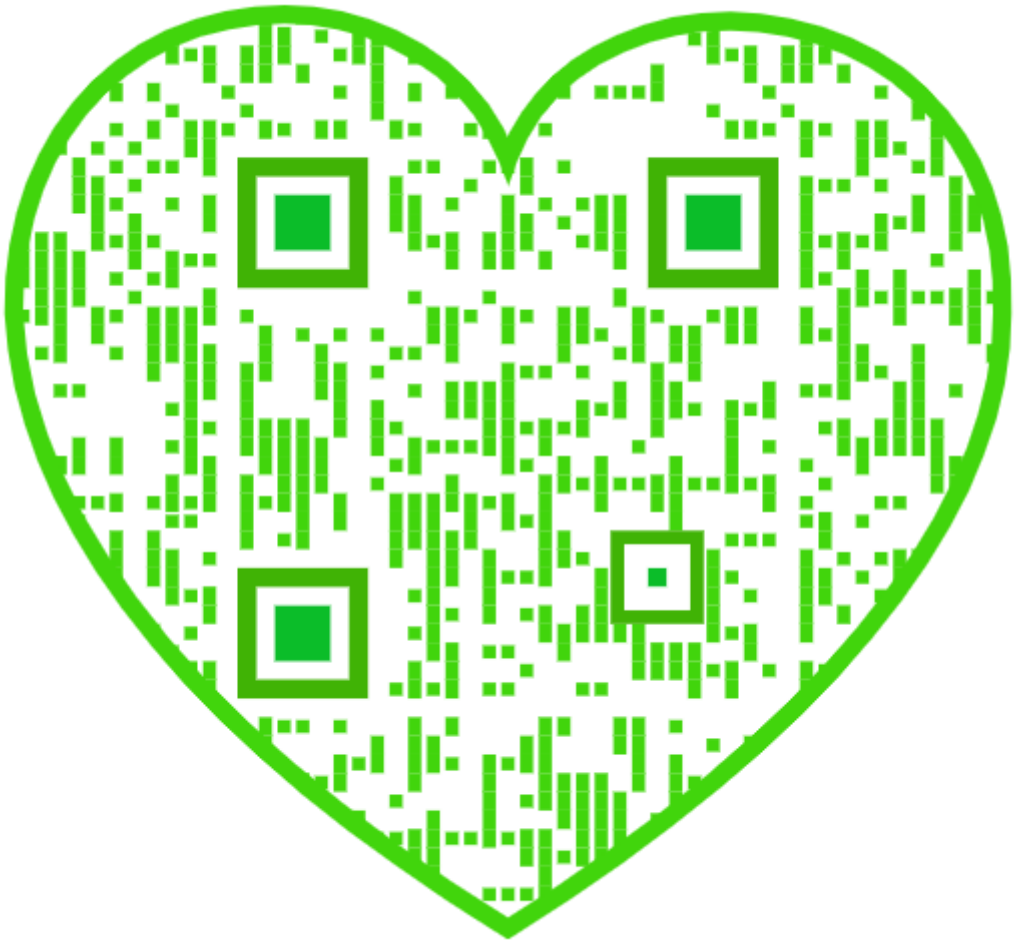

at $y'$ to the plate $r$. This lever, with its weight, is a counterpoise to the pressure guide roller, $f$, to make it sensitive. As the spindle of this roller is secured to the cross plate, which is secured to the sliding gate, $u\ u$, and as the bearings of the driving shaft, P, are upon this gate, consequently this shaft is elevated and depressed according to the inequalities or form of the sole of the shoe, over which the roller, $f$, passes. The whole of the pegging and punching operations, therefore, are adjustable and self-accommodating by these arrangements.

The spring, $f'$ (there is one on each side) for actuating the punching awl, can be graduated to give a light or heavy blow, as may be desired. This machine weighs only about 150 lbs. altogether; it occupies a space of only 2 feet in length and height, and 15 inches in breadth. It can be worked by hand or by a belt driven by steam, horse or water power. It pegs round one shoe in a minute; and completes nearly 30 pairs in an hour. There are five claims in the patent, embracing different points; they can be found in Vol. 8 "Scientific American," in our regular list, of the date mentioned above, when the patent was granted.

This machine is on exhibition at the Crystal Palace; and how it performs, and the quality of work done by it, can be seen there at any time. It attracts a great deal of attention from its ingenuity and novelty.

For more information, communications may be addressed to Mr. Gallahue, New York City, or to Messrs. Kramer & Rhahm, Pittsburg, Pa.

### The Imponderable Agents---No. 2.

Against the theory of emanations, as taught by Newton, there is one objection, which, though it has been often urged, has never, and can never be answered. Newton taught that light consisted of particles of the matter of the luminous body; if so, the sun must be decreasing in mass, slowly indeed, yet nevertheless constantly, and this process must in time result in utter extinction. It is vain to say that this process is slight; according to the laws of gravitation there must be an equilibrium between the centripetal forces; and the moment any appreciable quantity of the sun's mass has passed away, the centripetal force would be weakened, and the planets would no longer revolve in the same orbits.

Priestly, casting the concentrated light of the sun upon a delicate balance, attempted to weigh it,—he even fancied he had succeeded, and from the data thus obtained, he proceeded to compute the total diminution of the sun's bulk for a period of six thousand years. But we are satisfied that our intelligent readers will, with us, reject his experiment *in toto*, as the smallest particle of dust floating in the air would weigh more than the pretended weight of the sun's rays, as indicated by his balance. And from the most carefully conducted experiments, as well as from theoretical considerations, it is highly improbable that the rays of light are in the smallest degree ponderable. We regard this argument as an unanswerable one against the Newtonian system,—it cannot be evaded, and is of itself, we think, sufficient to overthrow it. Nor would this waste of matter be as slight as is pretended. When we consider that every point in space within reach of the sun's rays is, at each instant of time, supplied with light from one half the luminous points on the sun's surface; inconceivably minute though the particles of light must be, yet their almost infinite number—a number so great as to mock the powers of mathematical calculation—must, if the Newtonian theory were true, *rapidly* diminish the sun's mass. We are not surprised that from these considerations so many philosophers of eminence have of late been disposed to reject the Newtonian theory and adopt the only other—that of undulations.

Nor is the theory of colors, as explained by Newton, by any means satisfactory. At the time he began his explorations, he entered an untrodden field, and as a first discoverer, he did more to unfold its beauties than ever has been or can be done by any other; yet the light of modern science has rendered improbable many of his deductions. He supposes a beam of white light to be composed of seven different colors, yet he does not attempt to explain in what the difference of these rays consists; he regards the colors of opaque bodies to be consequent upon the reflection of an unequal proportion of the colored rays of white light, but he does not tell us what becomes of the remainder. Brewster attempts to help him out of this difficulty by supposing an absorption of the remaining rays, but this is only giving a name to the difficulty, without explaining it, and besides, what would be the consequence when the opaque body had absorbed to saturation? Sir David has himself shown it unnecessary to suppose the existence of more than three colored rays in the spectrum, but he does not, any more than Newton, point out the difference between them.

The theory of "fits," if we may call a theory which is merely giving a partial expression to a recognized fact, is very incomplete. We consider Newton justifiable in supposing that the particles of light are, when in one portion of their path, more easily reflected, and when in another, more easily transmitted, but he does not tell us why this is so.

The failure of the advocates of the theory of emanations to keep pace with modern discoveries in polarized light, is also one cause of the disrepute with which this theory has of late been regarded. The investigations of Brewster, of Biot, of Malus, of Fresnel, and a host of others, have given rise to the discovery of a class of phenomena which, from their variance with previously recognized laws, rendered necessary new hypotheses, or at least new applications of the existing ones, and the majority of these observers, being advocates of the undulatory hypothesis, their explanations, naturally enough, coincided with their previous views; hence it is now generally supposed that this theory is the only one that will satisfactorily explain the phenomena in question.

As we shall hereafter have occasion to differ from the prevalent opinions concerning the polarity of common light, it may not be amiss now to remark that we cannot discover the evidence on which is founded the assumption of Brewster, that common light is composed of light polarized in two planes situated at right angles to each other. We contend that the fact of the existence of two polarized rays situated in opposite planes, *after* double refraction. is no evidence that they were thus polarized *previous* to double refraction. The same force which refracted may have polarized the rays. Nor do the other modes of polarization afford any proof of the controverted fact, for a similar reason.

Intimately connected with investigations concerning the nature of Light, are the kindred subjects of Electricity, Heat, Affinity, &c., and our next article will be devoted to the consideration of these subjects.

### Camphene, Burning Fluids, &c.

The following is an abstract of an article which appeared in the "Journal of Commerce," by Alex. Jones, of this city:—

"We doubt whether there are any other compositions so extensively used in domestic economy, regarding which such gross ignorance prevails, as the articles at the head of this communication. The ignorance has been worse confounded by the introduction of unmeaning names.

It should be remembered that not all inflammable substances are explosive; otherwise fish oil and candles would explode.

We know the whole history of the materials produced by the pine tree, and used for purposes of illumination. And, strange enough, common parlance has applied the word 'camphene' to the whole of them. This name arose as follows:—The idea of using the common spirits of turpentine for illumination, had been long entertained; but its great excess of carbon rendered it unfit for use, as its combustion produced dense volumes of smoke. Attempts were made to neutralize this carbon, by the addition of other substances. It was found that if small portions of gum camphor were dissolved in the spirits of turpentine, it changed it to a clear fluid, which burnt with a bright flame, without smoke, and was no more explosive than common fish oil. This prepared spirits of turpentine was 'camphene,' and was introduced to the public under that name, as a patented article.

It was soon found, however, that the use of camphor rendered it too expensive, and the use of spirits of turpentine was tried in various ways without it.

Finally a lamp was invented, which, by means of a metallic button in the centre of a circular wick at the point of combustion, became so much heated, aided by a good draft through an improved glass chimney, as to consume all the carbon of the spirits of turpentine, producing a steady and brilliant light, far surpassing that afforded by gas, or any other substance, and at about half the cost of winter sperm oil, or gas. The spirits of turpentine thus used, is to this day called camphene, although it has not one particle of camphor in its composition.

By retail, it costs only on an average about 60 cents per gallon, while winter strained sperm oil to produce the same light, costs about 137 cents per gallon by retail. This plain spirits of turpentine (miscalled camphene) is wholly inexplosive, and we defy any party to give a single solitary instance of its ever having exploded.

I have used it in my house for four or five years past, and prefer it to all others.

We have no hesitation in saying that by the use of proper lamps, the streets of cities, and Government light houses, could be illuminated by the use of common pure spirits of turpentine, at about one half the cost of any other material whatever, and with a brilliancy far surpassing all others in proportion to size of burners. Spirits of turpentine is as much a national product as whale oil; and more so than coal gas, distilled, as is usual, from Liverpool coal, and Government should institute experiments as to its applicability for light house purposes. Yet this simple, cheap, and safe light, it is proposed to prohibit from use by Legislative enactment.—This is on a par with the ancient legislation in England, which prohibited the use of bituminous coal.

There is another composition used for illumination, called by the ignorant, indifferently, 'burning fluid,' or 'camphene.' It was found that, if common high proof whisky, or 'alcohol,' was mixed with common spirits of turpentine, it, like camphor, neutralized the excessive carbon, and brought it into a state fit to be burned in an ordinary lamp, like the common oil lamp, with ordinary wick tubes.

This fluid is explosive, or about so much so as alcohol, and requires care in filling lamps.—It, also, is a cheap and beautiful light. Its component parts, alcohol and spirits of turpentine being cheap and cleanly, it forms an exceedingly bright and steady light, better for the eyes than either gas, or oil light. In using the lamps with this mixture, they should always be filled in the day time, and set aside for use. Whenever, through gross carelessness, an explosion happens, it is published to the world as the explosion of a 'camphene lamp.'

We have never heard of an accident of the kind, that was not the result of gross carelessness. They nearly always happen by attempting to fill the lamp while burning, or by bringing the fluid in contact with fire or light of some kind.

The name of 'pine oil' is a humbug. Spirits of turpentine is nothing but oils from pines, (Oleum Terebintha.) The nick name 'pine oil,' only means spirits of turpentine obtained from common rosin, left in it by previous distillation, and then burnt alone, or mixed with alcohol.

The slight effluvia of turpentine, given off by the combustion of spirits of turpentine, I hold to be highly conducive to health, especially in bronchitis, and in affections of the lungs. I experienced a benefit from it in my own case, having suffered severely at times from bronchitis. Indeed, physicians sometimes recommend a residence in the pine forests of the South as a remedy for pulmonary diseases."

Remarks on the Above.—We have said a great deal in the "Scientific American," and many communications from others have also appeared on this subject. We dislike to harp upon one string too often, nevertheless, the subject of artificial illumination is so important to every man, woman, and child in our country, that every person should read all the articles which treat upon it. What a vast amount is expended for illumination in one year. We can form some idea of this when we take in to consideration that every house, store, street, many churches, lecture rooms, factories, &c., in our land, are lighted up for some hours every night. On land and sea, on railroads and steamboats, in cellar and cabin, in castle and cottage, the lamp is trimmed to cheer man in all situations, and in all conditions.

Camphene and alcohol give a more beautiful light than oil; it is cleaner, and we would prefer to use it always, and commend its use in families where there are no children, and where the females are careful and intelligent—not otherwise. We admit that many of the camphene explosions have been caused by carelessness, but just as many by ignorance of the nature of the fluid. Camphene is the proper chemical name of the oil of turpentine. It is composed of C10 H8—carbon and hydrogen. It is the excess of carbon which makes it give off a dense smoke when burned in a common lamp; It did not, so far as we know, obtain this name in the way mentioned above, but because camphor can be obtained from it. The only difference between it and and camphor is this.—Camphor is composed of C10, H8, O—one of oxygen. From the camphor tree a volatile oil is obtained, which is isomeric with camphene, and this by oxydation forms camphor and hydrate of camphene. Camphor mixed with turpentine will not prevent it (though we have not tried the experiment) from burning with a dense smoke in a common lamp; we thus judge from the composition of the substances. Neither camphene, turpentine, nor the burning fluid mentioned by Mr. Jones are explosive as fluids. Brandy can be poured upon a lamp without causing an explosion. All substances commonly called explosive fluids must become vaporized before an explosion can take place. The vapor of camphene becomes explosive when it is mixed with O28, (oxygen); this amount saturates it to ignite instantaneously and forms carbonic acid and water. The alcohol and camphene mixture is more volatile than camphene, as it contains more hydrogen (C4, H5O+HO.) All these fluids are perfectly safe to burn, if the vapor can be prevented from escaping. By experiments which were made by the Franklin Institute, the turpentine and alcohol fluid proved cheaper than either sperm, lard, or gas, for illumination. The suggestion by Mr. Jones of our government making experiments with camphene and alcohol fluids is a good one; it is worthy of attention. Newell's Safety Lamp, illustrated in our last volume, is the best we have seen for burning this fluid; it is constructed on the principle of Davy's Safety Lamp, and can be trusted. In our list of claims last week, one was for a can to hold the fluid, which we believe is a good one. The inventor is Dr. Nichols, of Haverhill, Mass. It would certainly be wrong to enact a law to prohibit the use of burning fluids, but at the same time it would not be amiss to make a law to prevent accidents arising from the use of them, so as to punish the culpable and reckless. These fluids can never be used for street illumination, they are neither so convenient nor safe as coal gas sent through tubes; in fact, gas is the grandest and best of all plans for artificial illumination, and we hope the day is not far distant when nothing else will be used in every family in all the cities and villages in our land. Every improvement which tends to cheapen gas light is an incalculable boon to the human family.

Mr. Goddard has arrived at the acme of aronautic achievement, in Paris. He has come down in a parachute on horseback! Two years ago, to *go up* on horseback was a marvel. The parachute was immense, and the cords, extending from its edges to the frame work that sustained the horse, were a hundred feet long.—The umbrella was, by some contrivance, opened before the cord of connection with the balloon was cut, in order to avoid, under the peculiar circumstances of the descent, the rapid fall that ensues till the silk unfurls. The aeronaut above (his brother) let him off at the height of a mile; the descent was easy and gentle.

The steamship "Golden Age," from this city for Liverpool on the 29th ult, returned to port to repair a boiler, through which a hole had been drilled,—strange this.

The raisin crop in Spain has been a poor one; dear wine and dear raisins next year.

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[Reported Officially for the Scientific American.]

## LIST OF PATENT CLAIMS

### Issued from the United States Patent Office

FOR THE WEEK ENDING SEPTEMBER 25, 1853.

LOOMS FOR WEAVING HAIR CLOTH—By Halvor Halverson, of Hartford, Conn.: I claim the combination of the trough or troughs, one or two depressers, one or two sets of pincers applied to the shuttle and mechanism, for opening and closing the pincers, the whole being applied to one or both ends of the lay, and to the shuttle, and made to operate together, for the purpose of carrying hair or hairs or like matters, into the shed of warps, as specified.

And, I also claim the arrangement of each or both troughs, with respect to the depresser or depressers thereof, and to the shuttle boxes and the lay, the trough in such arrangement being made to extend from the depresser towards the middle of the lay, substantially, as specified.

SASH FASTENER—By Henry Hochstrasser, of Philadelphia, Pa.: I claim the self-acting catch, made and operating substantially as described.

COOKING RANGES—By Nicholas Mason, of Roxbury, Mass.: I am aware that hot air chambers have been applied to ranges for the purpose of heating meats, dishes, &c., and also, that hot water spaces have been applied to the sides of the grates instead of at the back. I, therefore, lay no claim to such devices.

But I claim the employment of two ovens in combination with the peculiar arrangement of the flues around their top, bottom, back, and sides, by which I am enabled to heat five sides of either one or both of them at a time, as set forth.

MANUFACTURE OF SHEET IRON—By Henry McCarty, of Pittsburgh, Pa.: I do not claim the use of rollers generally, but I claim imparting to the surface of sheet iron, the peculiar mottled appearance of Russia sheet iron, by passing the sheet between a pair of planished or hammer dressed rollers, in the manner set forth.

COOKING STOVES—By Jordan L. Mott, of New York City: I do not claim as my invention any particular mode of securing the top plate of the bottom flue to the series of flue tubes; this may be done in various ways.

But I claim connecting the top plate of the bottom flue with the lower part of the series of flue tubes, so that in taking out the series of flue tubes, for cleaning the said top plate of the flue below, it shall be removed at the same time, and thereby exposeto view the lower flue space, greatly facilitating the operation of cleaning.

Second, I do not claim hanging the grate irrespective of the combination, as my invention.

What I claim is the combination of a swinging grate, as described, with the self-acting weighted latch, connected with the plate below the grate, as specified, whereby the contents of the grate can be readily discharged, and the grate readjusted by a slight use of a poker.

BATHING TUBS—By JordanL. Mott, of New York City: I do not limit myself to any particular form for the projection e, or to its locality, nor to the forms of the channels therein, as these may be varied at pleasure, although I prefer to make the whole as described.

Nor do I wish to limit myself to the making of the two channels in one and the same projection, as they may be made each in a separate projection, and located at different parts of the tub.

Nor, finally, do I wish to limit myself to the use of the channels, in combination, as the use of either one of them will greatly improve the bathing tub.

I do not claim broadly as of my invention the connection of the hot and cold water pipes of a bathtub, so as to discharge hot and cold water together, as this has before been done by a pipe or pipes, coupled with the bottom of the tub, and discharging upwards.

Nor, do I claim broadly, the use of an overflow pipe, for carrying off the water, and preventing the water in the tub from overflowing, as a separate device has before been used for this purpose, but when so used, it was so connected with the waste and supply pipes, as to necessitate the use of a valve within the waste pipe, with all its attendant disadvantages.

What I claim is, the before-described mode of combining with a bathing tub, either one or both of the channel-ways, substantially as described, and making when constructed, part of the tub, one of which channel-ways connect the overflow, and the waste or discharge holes with the waste pipe, and the other channel-way is adopted to the insertion of the hot and cold water pipes, and discharging the hot and cold water together at or near the bottom of the tub, and in a horizontal or nearly horizontal position, substantially in the manner specified

MAKING CHAINS—By Christian Sleppy, of Newport, Pa.: I claim the forging and making chains out of a solid bar without the welding process; and which is done instantly, as the bar passes between four rollers, with dies on the edges of the same, moulding the links into form, and which may be done out of iron, brass, or any substance suitable to be used as a chain, from the size of a cable to a watch guard.

ANNEALING HOLLOW IRON WARE—By David Stuart, of Philadelphia, Pa.: I claim the process substantially as described; the same consisting in coating the articles in the manner set forth, with the same composition that will resist heat and exclude air from the surface, and heating the articles so coated in an oven about the length of time specified.

SMUT MACHINES—By Robert Waskey, of Mill Creek, Va.: I claim the construction of the diaphragm, the central part being solid, and that near the periphery made in several oblique vabular passages to check and throw back the kernels of grain, as represented.

SMUT MACHINES—By Wm, Zimmerman, of Quincy, Ill.: I claim the machine described, for cleaning and scouring grain, hulling rice, pearling barley, hulling buckwheat, or otherwise operating upon grain, seed, etc., with a series of two or more stationary cones with one, two, or three, or more revolving cones placed and operated alternately between the stationary cones; the insides or outsides of part, or both sides of part, or all the cones being furnished with roughened surfaces, of such a form or kind, as will perform the service required, substantially, as described.

STEAM FOR ACTUATING ENGINES—By Charles E. John and Samuel Wetherd, of Baltimore, Md. Patented in England, May 25, 1853: We claim the combining steam or superheated or surcharged steam for actuating engines, when generated, the elasticity increased and operated as set forth.

PREPARING PARAFFINE OIL—By Wm. Brown, of Glasgow, Scotland: I claim first, the use of superheated steam as indicated, for the purpose indicated.

Second, I claim the mode of separating and purifying eupione lubricating oil and paraffine, obtained by previous process.

METHOD OF VENEERING—By Caleb B. Burnap, (assignor to Lucius F. Robinson,) of Hartford, Conn.: I claim the method of pressing veneers on to the surface to which they are to be glued or cemented by means of a fluid hot or cold, acting on an interposed flexible substance, such as an Indian rubber cloth or its equivalent, which will adapt itself to the surface, substantially as described.

CAR WHEELS—By Daniel P. Fales, of West Poultney, Vt.: I am aware that car wheels composed of two side plates of different shape, cast in one piece with the hub and rim in which the rear plate is made to combine the inner end of the hub with the face plate, and with alternate portions of the inner edge of the rim, have been made by Bristol and Jackson, and, therefore, I do not claim to be the inventor of this description of car wheels.

But I claim by my improved car wheel, composed of the face plate E, which, curves first inwards and then outwards, and expands into the rim, and the rear plate, B, which by the series of curvs combines the inner end of the hub with the face plate, and with alternate portions of the inner edge of the rim, substantially as set forth.

RAIL ROAD SWITCHES—By James M. Dick, of Buffalo, N. Y.: I do not claim the levers, springs, bolts, or connecting rods. Neither do I claim of itself the employment of a sliding bar connected to the switch.

But I claim the construction of the slide with the depending flanges or side plates, which enclose the slide and crosspiece upon which it works, and afford a certain and effective protection against gravel, dirt, snow, sleet, ice, and other foreign substances, which might otherwise enter between them, and derange the operation of the switch.

SHIPS BLOCKS—By Charles H. Platt, of New York City: I do not claim the plates F, G, for the purpose of securing the cheeks the proper distance apart, for they have been previously used.

But I claim the employment or use of the rods E, passing through the cheeks in a direction traversely of their fibre for the purpose of preventing the splitting of the cheeks; said rods also securing the plates F G, to the cheeks, and forming a staple for the hook as described.

I also claim the rods placed underneath the ends of the shaft, for the purpose of preventing the wearing of the cheeks, and thereby forming durable bearings for the shaft, as set forth.

CENTRIFUGAL DRAINING MACHINES—By Wm. Richardson, of New Orleans, La.: I claim the arrangement in the tub, Y, of the induction tube, A, supply bulb, B, and annular tube or ring, D, D, placed below the water line exterior of the tub in combination with the ascending tubes, E E and F F, and a second annular tube, G, having discharges, H H, for the purpose of self-priming, protecting the machine from the resistance of water exterior thereto, and giving steadiness to the ascending column of water discharged by the machine

CLAMP FOR LAYING FLOORS—By Stephen E. Parrish, of New York City: I claim the use of the brace having clawed ends for acting at opposite sides of a beam, in combination with a screw working at right angles to the same, substantially in principle of construction and operation, as set forth.

[For the Scientific American.]

## Patent Laws of New Brunswick.

[Synopsis of an Act of the Legislature of the Province of New Brunswick, passed in the Legislative Session of 1853, entitled "An Act to Regulate the Granting of Patents for Useful Inventions." By PETER STUBS, Barrister at Law, St. Johns, N. B.]

SEC. 1. The Lieutenant-Governor empowered to issue Letters Patent for a period not exceeding ten years, which are available to applicant and his representatives.

SEC. 2. Applicant to state, in his petition, "that he has invented or discovered a new and useful art, machine, manufacture, or composition of matter; or a new and useful improvement in some art, machine, manufacture, or composition of matter, not known or used by others, before his discovery or invention thereof, and at the time of the application, not in public or common use in this Province, to which petition an affidavit is annexed, setting forth that the same is just and true, to the best of applicant's knowledge and belief.

SEC. 3. With petition, a written description of the invention is to be given, signed by applicant and attested by two witnesses, setting forth the manner of making and using the invention, so as to enable any skilled person to make and use it; the principle of the invention is to be stated, and the several modes of applying it; a model is to accompany the application when necessary. Specimens of ingredients are to be forwarded, where the invention is a composition of matter, sufficient for the purpose of experiments.

SEC. 4. Applicant having obtained a patent for his discovery in another country, can obtain one here for the same, if it has not been previously introduced into the Province and in common use therein.

SEC. 5. Applicant for a patent dying before Letters are granted, his legal representatives are entitled to the same on petition.

SEC. 6. Letters Patent may issue to any assignee of a person entitled to a patent for any invention not previously patented, upon affidavit of assignor, that assignment is based on good consideration, and by assignor, as required by second section.

SEC. 7. Letters Patent may issue to the assignee of any person who has taken out Letters Patent for an invention in any other country, but not for an invention made abroad, for which no patent has been granted; Provided, the invention assigned has not been in common use in this Province, prior to the application for a patent: the assignee to file with his application the assignment duly proved, and an affidavit setting forth the date of the patent abroad, and that the patented invention has not been in common use here, and that he is assignee for a good consideration.

SEC. 8. Patents are assignable and fractional parts thereof, when granted here; and assignments are to be recorded in the Provincial Secretary's office, within three months of execution, being first duly proved on oath of subscribing witness.

SEC. 9. Persons pirating patents, to pay three times the amount of damage, which patentee or his representatives may have sustained, recoverable in the Supreme Court.

SEC. 10. Copies of, specifications, depositions, assignments, &c., filed with the Provincial Secretary, when authenticated by him, to be received as competent evidence in all Courts, where any matter concerning the patent comes in question.

SEC. 11. Any person desiring the same shall be entitled to such copies.

SEC. 12. When the Attorney General decides that an application for a patent interferes with another application then pending, or with an unexpired patent, the Provincial Secretary shall give notice of such decision to the several applicants, or patentees, and if any of them are dissatisfied with such decisien, he may appeal to the Lieutenant-Governor in Council.

SEC. 13. On such appeal the Lieutenant Governor in Council may appoint three disinterested persons as a board of examiners, one of whom, if practicable, to have knowledge and skill in the matter, to which the alleged invention applies. Examiners to be sworn before a Justice of the Peace, and to be furnished with the Attorney General's decision and ground thereof, and they are to give notice to the Attorney General and parties interested, of the time and place of their meeting.

SEC. 14. This Board has power to examine all parties under oath, which either of the Examiners can administer. The examiners or a majority of them, can reverse or affirm the Attorney General's decision. Before a board of examiners is appointed, the party applying for the same shall lodge £25 with the Provincial Secretary, for the purpose of paying reasonable expenses.

SEC. 15. Where the Attorney General entertains doubts as to an applicant's right to a patent, the Lieutenant-Governor may appoint a board of examiners, who shall have the same power as given to them in other cases. Before the board enter upon their duties, the applicant is to lodge £20 in the Provincial Secretary's office, for the purpose mentioned in last section.

SEC. 16. In case of appeal from the decision of the Attorney General, it is optional with the appellant to apply for a board of examiners or to appeal to a Judge of the Supreme Court. Appellant to a Judge to file the reasons of his appeal in the Secretary's office.

SEC. 17. The Judge shall determine the matter in a summary way, and the future proceedings of the Attorney General are to be regulated by the Judge's decision. The decision of the Judge not to preclude any person interested from the right of contesting the same in any Court where it may come in question. Appellant to lodge £20 before appealing to a Judge, to defray expenses.

Sec. 18. Any person making a discovery or invention, and being desirous of further time to mature the same, may file a caveat, setting forth its design and purpose, &c., and such caveat shall be in force for a year, and placed in the confidential archives of the Provincial Secretary. If application for apparently the same thing is made, such application to be deposited in like manner, and notice given to the person who filed the caveat, who, within three months, is to file his specification and drawings. If the Attorney General is of opinion that the specifications interfere with each other, the like proceedings are to take place by appeal, as before described. The decision of the examiners, however, may be contested in a Court of Justice.

[Remainder next week.]

METEORS.—We have received a letter from David F. Pattee, of South Dedham, Mass., wherein he states that at about the same hour, on the same night, in the month of September, last year, when a bright meteor was seen in Texas, he saw it at North Enfield, N. H. It was as large in appearance as the full moon, and for a moment made night appear like day. It swept across the heavens from west to east with great velocity. In less than three seconds from the time it was first seen by him, it burst without the least noise into splendid streams of many colors, and disappeared. He has been often importuned to send us an account of this phenomenon, but has not done so until now. It is indeed a remarkable thing that he should see this meteor at the same time it was seen in Texas, as described in the Scientific American, page 18 last volume.

### To Prevent Incrustations in Boilers.

At Ems, in Germany, it was recently found that no incrustation was formed in the boiler of a steam engine, which had been in use for two years, and although the water with which it was supplied contained 21·899 grains of solid matters in every pound. These were:

| | Grains |
|---|---|
| Carbonate of soda | 11·35488 |
| Sulphate of soda | 0·10790 |
| Chloride of sodium | 7·27020 |
| Sulphate of potash | 0·43653 |
| Carbonate of lime | 1·24370 |
| Carbonate of iron | 0·01728 |
| Carbonate of baryta | 1·06890 |
| Carbonate of manganese | 0·00868 |
| Carbonate of baryta and strontian | 0·00215 |
| Phosphate of alumina | 0·01090 |
| Silica | 0.37839 |
| | 21·89951 |

From this Fresenius, the celebrated German chemist, concludes that it is not carbonate of lime, but only sulphate of lime which causes the formation of crust, and that in the present case this is prevented by the quantity of soda contained in the water. This has given occasion to investigations, in which soda was added to water containing sulphate of lime, which hitherto had always deposited incrustations. In these cases the action was always found successful, so that Fresenius regards the addition of soda as the simplest means for the prevention of incrustation.

He gives the following rule to prevent the addition of soda in excess:—100 parts of anhydrous sulphate of lime are decomposed by 78 parts of pure calcined soda. The discovery of the correct quantity is so simple and easy, that this circumstance does not present the least difficulty. Care must be taken that there be always a slight excess of soda present, and the water in the boiler must therefore be tested from time to time. This is better and more accurately effected than with test paper, by dividing a sample (filtered if necessary) of the water of the boiler into two parts, and by adding to one part a solution of soda, to the other lime water. If the former remains clear, whilst the other is rendered slightly turbi , the proportion is correct. If the reverse is the case, soda must be added, whilst its quantity can be diminished if the turbidity with lime water be very great.

### Preserving Dried Fruit.

A correspondent directs our attention to the preservation of dried fruit, such as apples, peaches, plums, &c. As our's is a great fruit country, he considers it a matter of great importance that those who prepare and those who buy dried fruits for sale, should have them effectually insured against the attacks of worms. He thinks that if there are any persons in our country who can suggest a remedy for worms in dried fruits, especially peaches, they are to be found among the intelligent readers of the "Scientific American." We have no doubt but many of our readers can suggest a remedy; but first of all, we will suggest one ourselves, and that is to dry the fruits by high pressure steam heat, or by a current of hot air above 212°. Or after these fruits are dried in the usual manner, to subject them in an oven to heat at about 250° Fah., for about one hour. Those who dry fruit on a large scale, will find it to their advantage to dry it by steam heat, such as by Bulkley's patent plan. We suppose there are but few who are aware that sugars which remain proof against worm corruption in our climate, are treated with a curing heat, after evaporation. That is, they are heated for a short period above the temperature, at which the moisture is evaporated, and for the very purpose of preserving them from the evils spoken of by our correspondent, namely worms.

By the latest news from Europe it would appear that in many places of France and Italy, the people were suffering from a want of food consequent on a failure of crops.

Niagara river, at the Suspension Bridge, below the Falls, is 125 feet deep.

The Fair of the American Institute, opened this week at Castle Garden.

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# New Inventions.

### Improved Car for Transporting Cattle.

One of the greatest benefits conferred by railroads upon our people, who dwell in cities like New York, is in the transportation of cattle from distant places. Formerly the cattle which were intended for slaughter in this city, and other cities, were marched from Ohio, Canada, and the Western parts of this State, over bad roads, frequently travelling three and four hundred miles before they reached their destination. The time required to perform such journeys, was long, being no less than six days and a quarter, at the rate of twenty miles per day. This was attended with great expense, great labor, and exposure of drovers and cattle. One of the greatest drawbacks to the old system of droving, was the great loss of beef in cattle from long journeys, and this was a loss, too, as great to the consumers as the drovers. The transportation of cattle on railroads saves the loss of beef, as they suffer no fatigue, and are but a short time on the road. Cattle can also be brought from much greater distances to cities; indeed, they are brought now from places at such remote distances from New York, that it would have been impossible to bring them thence on foot. They are also brought without trouble, and require but little attendance. With respect to the vehicles—the cars for transporting cattle—it has been found that some improvements were required, and Andrew B. Dickinson, of Hornby, N. Y., has taken measures to secure a patent for such a purpose, the nature of which improvement consists in placing in the body of the car, a rack extending its whole length, and having the lower ends of its uprights secured by pivots to the sill piece, and the upper ends secured by pins between the joists. By this arrangement the racks can be shifted to confine the racks of the animals, to make each occupy a certain portion of the car; this prevents one interfering with or injuring another.

These cars are manufactured by Paine & Alcott, Corning, N. Y.

### New Wardrobe Bedstead.

An improvement in Wardrobe Bedsteads has been invented by Andrew Erich Botter, of New York City, for which he has taken measures to secure a patent. This bedstead may be folded or shut up, so as to represent a wardrobe, a book-case, or any like piece of furniture. The bedstead, when unfolded, is partially supported by a rectangular chest, which may contain a child's crib, or drawers for clothing. This chest, when the bedstead is folded up, being underneath it, forms its support, and serves to increase its height so as to conform to the height of a wardrobe or book-case.

### New Gas Meter.

C. Collier, of Indianopolis, Ind., has taken measures to secure a patent for an improvement in gas meters, the nature of which consists in a certain arrangement of waste water chambers and a seal pipe, whereby the bottom of the inlet pipe is always sealed by the waste water, but is altogether beyond the control of the consumer, who can let off all the waste water, except that required to seal the tube and balance the pressure of the gas, for which a proper quantity must always remain.

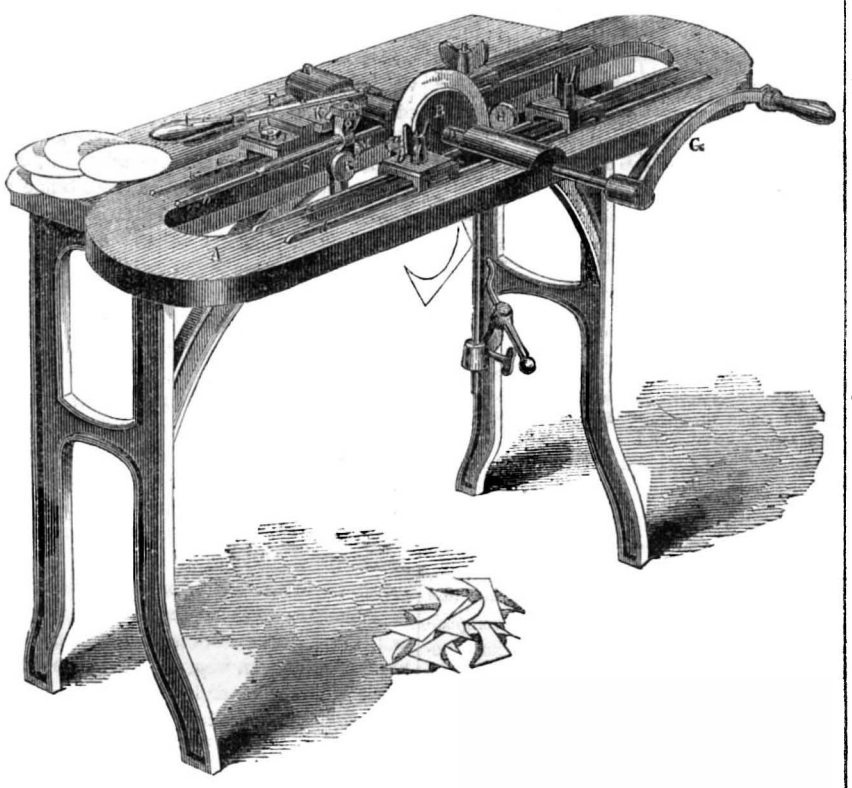
### Machine for Making Bed Pins.

William McBride, of Bristolville, Ohio, has taken measures to secure a patent for improvements on machines for making bed pins, which consists, 1st. in attaching to a common turning lathe a sliding stock provided with two peculiarly shaped cutters, one stationary and the other movable. The stationary cutter is of such a shape that it forms the tapering part of the pin, the movable cutter is of such a shape as to form a round head on the pin, and cut off the pin from the block ready to be discharged. 2nd. It also consists in making the pins of a uniform length by employing a spring gauge which discharges the pins after being turned and cast off.

We have seen it stated in our daily papers, that "the inventor of wood gas had arrived here from Europe." He must be an ancient fellow, as gas was made from wood 150 years ago.

## MACHINE FOR CUTTING AND BENDING METAL DISCS.

The annexed engraving is a perspective view of a machine for cutting and bending the edges of metal discs—such as the bottoms of tin pans, &c. It is the invention of Elliot Savage, of Berlin, Ct. A patent was granted for the improvement, on the 30th of last August, 1853. It is an improvement on the patented machine of Joseph F. Flanders, assigned to Roys & Wilcox, who are also the assignees of this patent.



CUTTING.—A is the frame for sustaining the operative parts. There are two circular disc gripers, one B on shaft D; the other is opposite to it on another shaft and not seen. The piece of metal to be cut into a disc and have its edge turned, is first placed between these gripers. The small shaft containing the griper not seen, is moved longitudinally towards shaft D, by the toggle lever F. G is a crank lever to rotate D. There are two rollers to cut the sheet of metal; the one H only is seen; they are used in other machines of a like character. As the piece of tin to be cut is revolved in the gripes, it will be observed that the cutting pollers cut it off, forming it into a disc. The waste pieces are shown below the table.

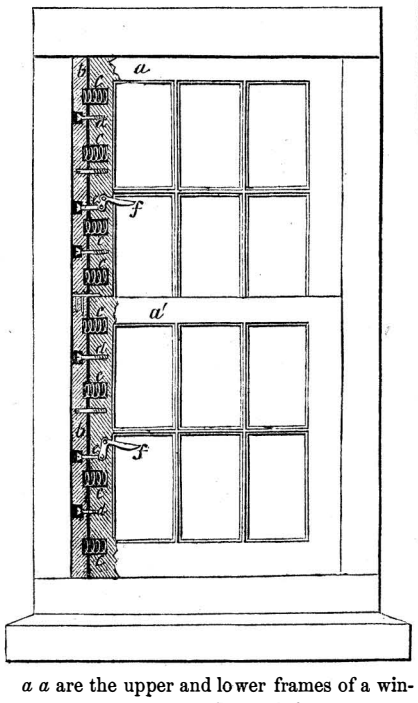
BENDING.—*a* is a conic frustum or roller, whose axle is supported on a small frame *b*, which is so applied to the large frame A, as to be capable of being moved towards or from the shaft D. The frame *b* rests and moves on rails *d e*, and is provided with a set screw and nut *g*, by which it may be confined in any desirable position on the rails. I is another small frame which moves on rails *i h*, and may be confined thereto by the nut *l*, working on a set screw. This frame carries a small sliding carriage K, which by means of the lever L, may be made to move transversely across frame I, so as to carry a support conical roller M towards or away from the roller *a*. The roller M is supported by a vertical bar that extends down from carriage K; the said bar, at its lower end, is bent at right angles, and sustains through ears *m* or parts of it, center screws that serve to support a frame Q. This frame turns horizontally on the screws, and carries a frusto-conic bending roller R, which is so arraigned, that it may be turned around the angle of the two edges of the rollers *a* M. The roller R is placed at a distance from the edges of the other two, equal to the thickness of the sheet of metal which is to have its edges bent. The lever S extends from the frame Q, by it the bending roller R may be moved back and forth.

By applying to the two rollers R *a*, the support roller M, the cut plate is firmly griped or held at or near its outer edge, and while the bending down of it is effected by the action of the bending roller. In bending down the edge of a circle of tin plate, held between the griper plates, it has been customary to make the gripers of a diameter large enough to allow the flanch to be bent down upon the periphery of one of them, such requiring a set of gripers of different sizes, in accordance with the various sizes of circles to be cut and bent.

One set of gripers only is employed in this machine, as the bending of the tin is not performed on either griper, but by mechanism independent of it. The plate to be bent in this machine is, therefore, held by separate holders; its edge projecting beyond the rollers, R, *a*, a distance equal to the width of the part to be turned down. While the plate is revolved the roller, R is moved around against it, and turns down the edge against the conic surface of roller, a. These machines are manufactured by the skilful, enterprising, and extensive manufacturers of such tools, Messrs. Roys and Wilcox, of Berlin, aforesaid, to whom communications for more information may be addressed.

### Expanding Window Sash.

The annexed engraving is a vertical view partly in section, of a window, to which the expanding sash is applied. A patent was granted for the improvement on the 16th of June, 1852, to M. Nutting, of Portland, Me.




*a a* are the upper and lower frames of a window. Into one side of the sash is made a groove, and into this is let the expanding sash, *b*, which is a strip of wood. Small recesses or holes are cut in the sash of the window, and into these are placed coiled springs, *c c*. The expanding sash is secured by screws, *d d*, to the window sash. This expanding sash, owing to the tension of the springs, *c c*, presses against the side of the window casing, and holds the window in any position in which it may be placed; *f f* are small toggle levers, their fulcar are in the window sashes, and they are attached at their inner ends to the pins, *e e*, which thus secure them to the expanding sashes, *b b*. By pressing upwards on either the upper or lower levers, *f*, it will be observed that the strip, *b*, will be drawn in to its groove in the window sash, to allow the window to be raised. It goes back to its former position when the lever, *f*, is relieved from pressure. This expanding sash is designed as a substitute for balance weights and catches. It can be applied to any window, and makes a close fit so as to prevent any shaking of a window, and also act as a side weather strip. A model sash of this kind is on exhibition in the Crystal Palace, in Class No. 7, lower floor, near the large patent scales. The patentee or his agent is regular in his attendance there, and willing to explain the advantages of the invention to all enquirers, and probably would not object to receiving orders for state or county right.

### Improved Mowing Machine.

Martin Hallenbeck, of the city of Albany, N. Y., has taken measures to secure a patent for an improvement in mowing machines, which consists in placing the sickle or cutter at the back of the driving wheel, and attaching the draft pole to the machine out of line with the driving wheel, and at the side of the driving wheel towards the sickle. By this arrangement the line of draught is made to counteract the resistance which the grass offers to the sickle; the sickle consequently moves forward in a steady manner, keeping in the same line; the machine thereby being made to proceed with a very steady motion. The fingers of this machine for holding the grass are peculiarly constructed, so as to prevent the grass being forced out from them when acted upon by the sickle; the recesses in the fingers are also prevented from being clogged or filled with dirt.—The sickel is also secured above the fingers by a metal plate in a very superior manner.

### Lardner and Steam Navigation.

We have received the following letter from a friendly correspondent:

"By the way, I have twice seen in your paper a denial of certain positions in regard to Ocean Steamers, attributed to Dr. Lardner; but if you will refer to 'Fisk's Travels,' Harper & Bro., 1838, page 616, you will find that the President of the Wesleyan University states that *he heard* Dr. L., 'give a verylong lecture to prove the impossibility of navigating the ocean with steam without an intermediate stopping place to take in fuel.' Thinking there might be something connected with this matter overlooked by you, I have taken the liberty of calling your attention to the above. S. S. B.

Danville, Va."

[We do not deny, neither does Dr. Lardner, that he used language, akin to that attributed to him by Fisk. What we have contradicted, because it has been usually said of Dr. Lardner, is, "he asserted the *impossibility* of steamships crossing the Atlantic Ocean." In the state of steam navigation at the time Dr. Lardner made his remarks, he was perfectly correct, and even some years afterwards, in 1846, we well remember how the French steamers always put into Halifax for coal.

### The Jacquard Loom Superseded.

The Correspondence of Turin says—"A new and ingenious application of electricity has been much spoken of here lately. The Chevalier Bonelli, of this place, director of the Sardinian telegraphs, has invented electric weaving machines, destined to replace with advantage the frames *a la Jacquard* for weaving figured stuffs. Details are as yet wanting respecting this invention.—[Ex.

[The Chevalier may have invented a loom by which various movements may be given by electro magnetism, this is quite feasible, but then it cannot be operated so cheaply as by hand, water, or steam power.

The mechanics of Massachusetts are making efforts for the passage of a "ten hour law." They have long labored for this object for the factory operatives without success. The hours of labor in many of the factories are far too many.

We will have something more to say about inventors in our next.

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# Scientific American.

NEW YORK, OCTOBER 8, 1853.


### Canadian Railroads.

This continent is destined to be the great caravansera or half-way house, of the commercial world; indeed, it is fast becoming so. From the icy ocean of the north, it stretches through the equator to the 56th degree of south latitude, interposing between Europe and many of the richest regions of the old "Orient" and the new "Great West." Long and dangerous is the sea voyage from the east Atlantic around the stormy capes of Horn and Good Hope, but the time is not far distant when such voyages will become sensibly fewer; the Atlantic will yet be united to the Pacific by iron bands, and the hoof of the iron horse will soon be heard thundering through the defiles of the Rocky Mountains, carrying the joyful news of the iron bound nuptials of the two great oceans. This is determined by the people of the United States—it is a manifest destiny affair, and must be accomplished.

There is another country—our next door northern neighbor, that is now fully awakened to a just sense of the advantages of railroads, their necessity to her growth and prosperity.—A scheme to construct a railroad through Canada to the Pacific was proposed two years ago, and Mr. Whitney—our American Whitney—endeavored to impress the people of England, when in London at that time, with the importance of his scheme for such a purpose.—Whether such a project will ever be carried out or not we cannot tell; there are natural obstacles to such a work in Canada, such as heavy snows for four months in the year, which will always detract from its payability at least. A system of railroads for Canada, however, is not only proposed, but projected and commenced, and some of the heaviest capitalists in England have come forward with their influence and money to construct and sustain them. The eminent engineer, Robert Stephenson, was recently in Canada making examinations and giving counsel about their plans and construction, and no man from experience, in a certain sense, is better qualified to do so, yet we think that in surveying and laying them down, some of our American engineers should be associated with the enterprize, as their experience is of a more practical character, considering the nature of the country, than that of English engineers.—The inhabitants of the cities of Montreal and Toronto gave Mr. Stephenson dinners, at both of which he made excellent speeches; they were full of common sense, scientific and practical information. He councilled them to adopt a general system, and said:—"In advising that system, he would strongly urge upon their attention, the mistake he conceived to have been made in the United States of North America.—There they carried their competition to an absurd extent, because they have between various places four lines of single railways. The object being, that every man possessing property in the country, wishes a railway to go through it, and by the influence of intrigue, succeeds in doing so. The consequence is, that the country is scattered over with imperfect lines of railway, that are incapable of giving cheap conveyance, and what is more important to the public, they cannot give safe conveyance, as you know well by the accidents which have occurred within the last few months. His experience in England enabled him to hold it as a maxim, that where combination is impossible, competition is impossible. That was his position, and he had never known it wrong; and he believed it was impossible to make it wrong. Suppose these separate lines of railway had combined in the first instance, they would have made a double line of railway at much less expense, and they would have worked it with perfect safety. Is it therefore not perfectly evident, that the multiplication of single lines in a country, is the most injudicious mode of intersecting a country?—They must begin by single lines, he would admit; but before making competing lines, let him enjoin upon them to duplicate the single lines they had got, and they would have more dispatch, more safety, and more business. And nothing can be more at variance with this course than that pursued by Massachusetts and New York; but they are now beginning to see the folly of such a course."

We hope the people of Canada will lay up this advice in their hearts, and act upon it; it is sound and judicious. From the first we have been the advocates of double lines of railroads, but at the same time we detest monopolies, when under bad management, and we have also had sad experience in the United States, of which Mr. Stephenson does not seem to be aware, of the want of competing lines, especially in New Jersey. We must also say that he is in error about every owner of land in the United States wanting a railway to go through it. Hundreds among us, for good reasons to themselves, opposed railroads passing through their lands. He is right, however, about double tracks; let the people of Canada, (many of whom we know to be much devoted to science, inventions, and progress) exert all their influence to get double tracks, and let them be fenced in and well guarded.

### To Mechanics---Strikes.

In a letter which we have received from one of our intelligent and constant readers, we find these words:—"I found one or two of the old club somewhat offended at you—one in consequence of some words made use of by you in your article on Mechanics' Strikes; the objectionable remark being that employers should unite and frown down all attempts on the part of the employed to increase their wages. The other gentleman was offended because, in an answer to one of his letters, in your correspondent columns, about what he considered a new invention, he was told it was three thousand years old."

The author of the letter says, he has "searched through the back numbers of the Scientific American, along with the person mentioned, to find out if you used the language about strikes attributed to you, and could not, and yet he *asserts* you did use such language."

We never expect to edit a paper to please everybody; we never have tried to do so, and never will; in fact we never say anything with the distinctive object in view of pleasing anybody. It makes no matter what subject we write upon, we endeavor to present the truth, as we view it, independent of the smile or frown of any person; the consequences we leave to take care of themselves. Our correspondent, however, will look in vain to find such language as that attributed to us about strikes, and the man who made the assertion did not read correctly, or has not acted honestly in the premises. In respect to strikes, we think they are in general the most foolish means mechanics can use to increase their wages. Great "blowers" are the last men we would trust, and yet these are the men who oftentimes exercise the greatest influence on exciting occasions, and exercise it always for evil. Men have a perfect right to refuse to work for any wages employers may chose to give, but no body of men have a right to coerce an employer to give $2 per day to a man who is only worth $1, nor to act upon a system which reduces the man who is worth $3 per day to work for $2. As a question of justice, piecework is the only correct way of selling labor. Employers often do wrong to their workmen, and vice versa. One distinctive object of ours is to make the employer and the employed understand one another better, for their interests are one—not antagonistic. They do not all—yea, very few of them—feel this, and this is the reason why many of them often injure one another. Our object is to spread intelligence, promote good will, and make them both richer and better, and consequently happier. We deprecate the spirit in an employer who tries to squeeze out of his workmen the greatest amount of skill and toil for the lowest driblets of wages, and we deprecate the bad spirit in workmen, who are only eye-servants—who cannot be trusted out of sight.

### To Preserve Gum Arabic Solutions.

MR. EDITOR—A few drops of alcohol, or any essential oil, will preserve a quart of the mucilage of "gum arabic" or "gum tragacanth" from spoiling. A small quantity of dissolved alum will preserve flour paste. S. A. C.

Hartford, Conn.

### New Light---Kerosene Gas.

On Wednesday evening, the 28th inst., we were invited to examine a new method of illuminating the "Art Union" Rooms in this city. Two apparatuses were erected to exhibit different improvements, to accomplish the same end—namely, the production of a cheap, good light. One apparatus produced an illuminating gas by forcing air through eupione, or some of the benzole series of fluids obtained from New Brunswick asphalt, and from this it was conveyed to the burners. In a small apparatus of this kind, the air was forced through the fluid, by clock work machinery. The gas produced in this way, is asserted to be 50 per cent. cheaper to the consumer than ordinary oil and burning fluids. The picture gallery of the "Art Union" was lighted up with gas produced by destructive distillation from the same kind of asphalt.

The inventor of these new modes of producing artificial illumination is Dr. Gesner, of Nova Scotia; he secured a patent in this country in 1850, for his method of producing gas from the asphaltum, and he is the inventor of producing hydro-carbon fluids from the same substance. We witnessed some very satisfactory experiments with the gas made from asphaltum, by Dr. Gesner, in 1850, but the recent instance was the first of beholding its application on such an extensive scale. The New Brunswick asphaltum has the property of producing, by simple destructive distillation, an excellent combined light-carburetted-hydrogen and olifient gas, which requires only to be cooled by passing it through water without the use of a purifier, as in coal gas apparatus, when it is then ready for burning. The passing of air through naptha and benzole fluids, thereby impregnating it with carbon and hydrogen, in the proper quantities for producing a bright light, is nothing new; but hydro-carbon fluids, produced from the asphaltum, and employed for this purpose, is a novel application. At one time we had some of this asphalt in our possession; it is rich in the production of volatile matter, and by those who have made the comparison, it is said that it yields one-third more of good gas than the best Cannel coal. In our list of Claims, this week, it will be perceived that a patent has been granted for the production of paraffine oil from coal—it is the same as that produced from asphalt: and the substance, in itself, is not new. The question in which we are interested is the cheapness of these products. None of these hydro-carbon substances—gases and fluids—will supersede coal gas, unless they can be produced much cheaper. A company has been formed in this city to carry out Dr. Gesner's discoveries in asphalt productions, for illumination. We can say, from what we know personally, that the process of making gas for illumination, from New Brunswick asphalt, is the most simple of any for such a purpose; the manufacture of gas from oil, resin, and coal, involves more complicated operations and apparatus. We hope the enterprise will be successful; cheap light is a grand element in the elevation, comfort, and happiness of the human family.

### Patents on Medicines.

Having received a number of communications respecting the securing of patents for new medicines, such as linaments, &c., a few words on the subject will be useful to all such enquirers. At one time patents were freely granted by our government for medicines, but no such patents are granted now. Ignorant of this fact many persons may, within the past few years, have applied for patents on medicines, thereby losing one third of their patent fees, and all the incidental expenses. Those who have applied to us to make application for patents on medicines, have always been informed of the rules of the Patent Office in respect to such applications. Although we believe that a "new and useful medicine" is strictly embraced under the head of "new and useful compounds," which are patentable subjects, yet the abuse of patents for quack medicines, which at one time were so very common, no doubt led to the decision of the Patent Office in respect to this class of subjects. It is not against the law to grant a patent for a new and useful medicine, but in accordance with its provisions; nevertheless, it is a long time since a patent has been granted for such a subject matter. It is amusing to look back and see what funny compounds were at one time patented. For a composition of French brandy, spirits of turpentine, and Indian turnip to cure the toothache, Prof. Penning, of Ohio, obtained a patent in 1829, and not to be behind the Professor, another patent was also granted at the same time to accomplish the same object, to Thos. White, also of Ohio; his composition, however, was totally different, viz., camphorated brandy, oil of peppermint, camphor, turpentine, and a few other hot stuffs. At that period the art of dentistry was in a low state in comparison with what it now is, hence the field was very extensive then for toothache drops.

### Our Streets.

We cannot avoid giving utterance to the benevolent wish, that some grim griffin would take our city fathers by the nape of the neck, and hold their delicate olfactories for one hour, daily, within an inch of the most odorous pile of filth to be found in our streets. We should then indulge in a faint hope of something being done to purify us from the pestiferous piles of filth which now emit their disgusting odors in every street, lane, and alley of our populous city.—Even Broadway is not exempt, but if we turn into some of the less fashionable streets, the rotten cabbages and kitchen slops that emit their plague-engendering miasma, is perfectly loathsome. The city press, with one voice has so often called the attention of the Common Council to this state of things, that it seems of late to have grown weary of the fruitless task. The laws are doubtless well enough if they were only enforced; but our lazy Aldermen, and more lazy Street Commissioner, seem determined to win for themselves a world-wide reputation, and are zealous to serve the public, as long as they can do so at four dollars a day and nothing to do, or rather nothing done. We can hardly understand how human beings can breathe an atmosphere so largely mingled with carbonic acid and sulphuretted hydrogen, without almost immediate death. That the results are shockingly deplorable, any one can witness by looking at the weekly report of the Board of Health..

### Increase of Matter.--Good Opinions of Subscribers.

Owing to a change of type for our correspondent and claim columns, no less than one-eighth more matter is now added to every number of the Scientific American. We have received many very complimentary letters from our readers, since we commenced this volume, all wishing us a brotherly "God-speed" in our work. Without exception, they say, that for neatness and execution, it is the first paper in our country.

### Sydenham Palace.

In the last number of the "Scientific American" we called attention to the re-erection of the old Crystal Palace at Sydendam. It may interest some of our readers to be informed that Messrs. Avery, Bellford & Co., of London, will act as agents for any parties who may wish to offer contributions for exhibition. The above firm is in every way worthy of the confidence of our citizens.

### Premium for Lightning Rods---To Ship Owners.

In order to prevent the frequent occurrence of vessels being struck with lightning at sea, by encouraging the use of lightning conductors, the Board of Underwriters of this city have agreed, until further notice, to make a return of two and a half per cent. on the amount of premium upon vessels provided with approved lightning rods, and keeping the same on board, and in use, or to pay a proportionate part of the cost of such rods, if the same be less than two and a half per cent. of the premium on the whole value of the vessel. The return to be made on the affidavit of the assured, or the officers of the vessel, when the premium becomes due.

The frequent occurrence of disasters to vessels by lightning have led to an investigation which has resulted in establishing the protective qualities of good lightning rods.

### Correspondence.

We have received a number of interesting communications on different subjects, lately—they will meet with attention soon. One is from Lieut. Hunt in answer to the article by "Engineer" on steam boiler explosions.

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*General Remarks.*—We regret being under the necessity of again calling the attention of the Directors to the fact, that the articles on exhibition are not all perfectly labelled yet. It should be insisted that the exhibitors must label each article and each case of articles when they are of one kind, with a card containing the exhibitor's name, address, the name and object of the article, and exact date of the patent, if it be a patented article.

It is true that much of this can be learned from the catalogue, but probably less than one-fourth of those visiting the Palace procure catalogues—very many visit it but once, and are unwilling to subject themselves to the additional expense. As it is, it appears as if the Directors had an interest in selling as many catalogues as possible.

We should think that exhibitors would be sufficiently awake to their own interests to attend to this, especially those who are not constantly on hand to afford explanations. A few lines explaining the nature and merits of their articles clearly written or printed on a card, and attached to them, would be as much benefit as advertisements in half-a-dozen daily papers. We do not see why so many should be thus blind to their real interests; one of the essential advantages to be gained by exhibitors from this Fair, is notoriety in the branch in which they are engaged, therefore they should improve the opportunity and make the best of it.

But little change has taken place in the exhibition during the past week—the little that has been done consists in the more perfect arrangement of the articles, and in the setting in motion a few machines not previously running.

We regret that the class of machinery we have been examining this week is so incomplete. There is scarcely a more important branch of industry in the United States than iron manufactures, embracing as it does, such a wide extended field—from the blast-furnace to the thousands of foundries, and factories of various kinds, that are scattered throughout almost every village in our land; and yet how few are the representatives in the Crystal Palace of the vast multitude of machines concerned in these unnumbered operations? Soap-chandlers and confectioners, and patent medicine brokers, and gew-gaw manufactnrers, are all on hand; but the iron-masters seem to be slumbering. It is doubtless in a great measure owing to the management of the Directors previous to the opening of the Fair, which dissatisfied many business men, such as these individuals must necessarily be.

*Machinery Used in the Manufacture of Iron.*—The Saco Co., Biddeford, Maine, exhibit a large and a small shaping-engine, the large one being a patent feed motion, by means of which the work can be fed up to the tool in any required direction. These are highly finished machines and do credit to their manufacturers. They also exhibit two very good lathes, one having a screw feed motion, and one feeding by an endless chain.

Henry Steele & Co., of Jersey City, exhibit a machine lathe beautifully finished, and having a compound rest, by means of which the tool can be more conveniently changed to any required position. A convenient and well-constructed lathe.

David Dick, the inventor of the Anti-friction Press, exhibits various machines to which this principle is applied. These are manufactured by the Hadley Falls Co., of Massachusetts. They are well made, and seem calculated for durability and efficiency. Among these are the shears we have already mentioned, the largest pair in the world. It is certainly interesting to witness the apparent ease with which they will cut the thickest boiler plate: their massive jaws close upon it as though it were a tempting morsel. He has also two or three punches for punching boiler and other plate, and a gummer for cutting saw teeth. In Volume 5 of the Scientific American we illustrated the principle of Dick's Press, as applied to different purposes.

Wm. Bushnell, of this city, shows a metal drill, it is small and compact, but the handle is placed wrong for convenient hand drilling, as it is at the top of the drill and revolves horizontally. P. A. Leonard & Co., exhibit a lathe well finished, but possessing no peculiarity, and by the side of this is another, without name or label.

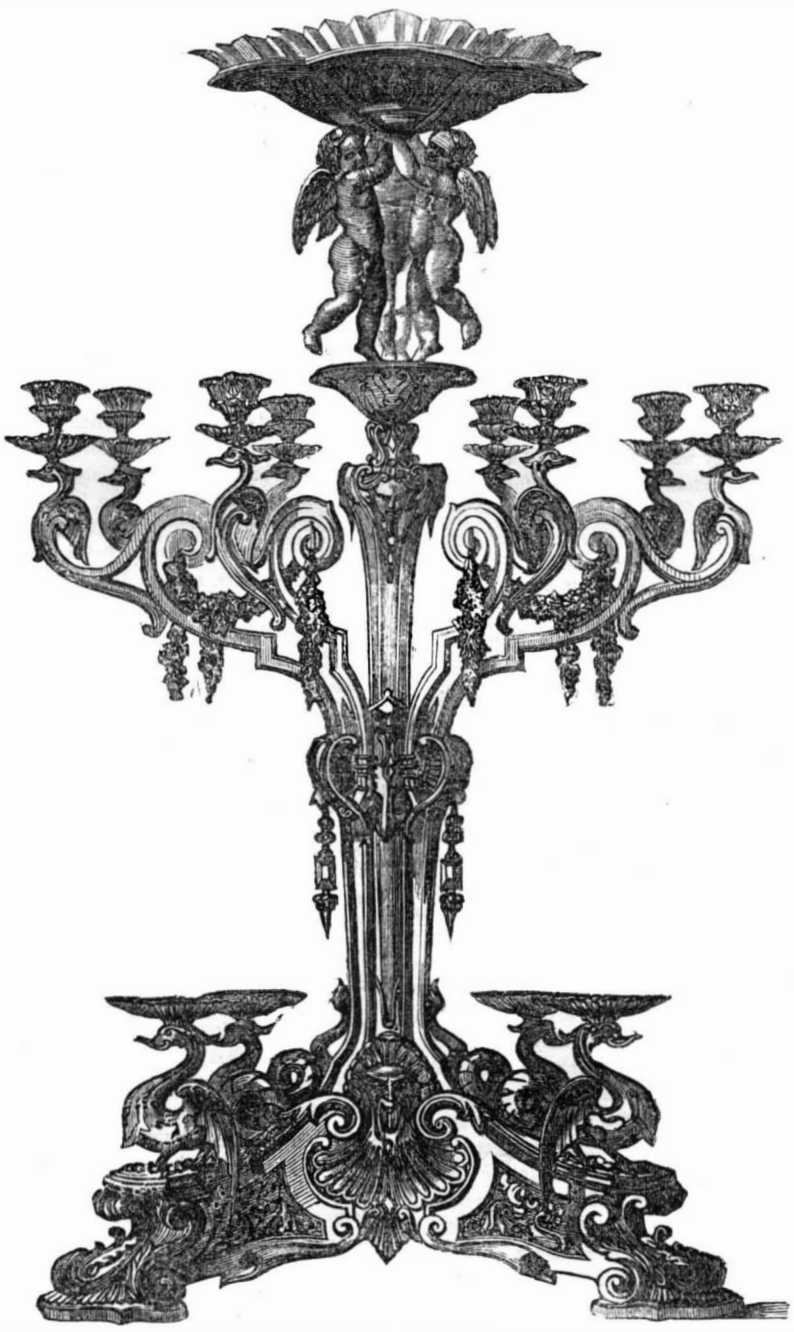
Nathan Morrison, of Daysville, Conn., exhibits an endless chain lathe which speaks well for the workmanship of its manufacturers.

In the English Department are the tools referred to by us last week, of Joseph Whitworth, Manchester. The principal of these are a screw-cutting machine for cutting the threads of bolts, large shaping machine of a somewhat peculiar construction, a slotting machine, planing machine, and lathe.

We also noticed a vise and an adjustable or universal chuck, exhibited by W. Hickok, the exhibitor of the slubbing and roving frames mentioned in our last number. This chuck is named the "James Stivens' Patent;" although made in England the inventor resided a number of years in this city, and took out a patent for a cycloidal rotating pump. H. went to New Orleans about two years ago, and we were informed a short time since that he died there last year. While residing in England he invented a number of very useful improvements. It would have been more to his interest, while he lived, if he had loved himself more wisely. He was an ingenious and skillful practical mechanic.

Our engraving this week is an illustration of

A CENTER-PIECE OF THE FOURTEENTH CENTURY.



a center-piece in the style of the Fifteenth Century. It is in one of the cases which all those who have visited the Palace have seen standing in the English Department. We have already referred to these specimens of silver ware. They constitute, to many, one of the most attractive features in the Exhibition. "Sir Roger de Coverly and the Gipseys," and "The Arabs pursuing a Traveller by his Foot-prints in the Sand," have been particularly admired.

*Statuary.*—"The Guardian Angel," is by Bienaime, of Rome. The Angel is represented standing between a child and a venomous serpent, which is striving to pass around the Guardian Spirit, that it may reach the child, which, all unconscious of its heavenly protector, is looking imploringly upward.

Pietro Pagani is the artist of "Eve after the Fall;" this is a very different piece from the Adam and Eve mentioned in our last. It attracts much attention, but we do not very much like it. The expression of countenance is a perfect puzzle. She seems starting back in terror, as though she had been frightened by a thunderbolt. Her eyes are staring, her lips just parted, her hands elevated to the sides of her face, and her long hair hanging wildly around her shoulders. Perhaps the artist intended to represent her terror when she heard the voice of Jehovah calling to her as she wandered conscience-stricken after having tasted the forbidden fruit.

All our readers have heard of "The Dying Gladiator." It is an antique, by an unknown artist—for aught we know, Praxiteles himself, though probably of a later date. There is in the Italian Department a reduced copy of it by Engenia Baratta. It was of this statue that Byron sung, probably no sculpture, ancient or modern, has been so widely famed.

The same artist exhibits a "Savior,"—the expression of his countenance is a fine embodiment of our conception of the holy meekness and benevolence of the Savior of man.

Gram Paoli is the artist and exhibitor of three fine Alto Relievos, which may be seen in the Italian Department. They are a group of "Bac chantes," "The Dancing Girl," and the "Dying Warrior." These, in our judgment, are the best Relievos we have seen in the Exhibition.

*Paintings*—No. 61, represents the discovery of Gustavus Adolphus after the battle of Lutzen: a Dusseldorf by Gusselchep. This is a night scene, and the glare of the torch, shining over the pale face of the fallen king, the dismounted cannon, the mangled corses, all blending together, present a fit illustration of the scenes after a battle, when the shout of victory has given place to the groans of the wounded and the shrieks of the dying. We thought the column of smoke given off rather large for a torch.

No. 76. "Mary Stuart Listening to John Knox:" a Dusseldorf, by Volkhart. Beautiful indeed was Mary, Queen of Scots, if this be a faithful likeness. She seems listening attentively to the truths expounded by the plain old man who, with eyes cast down, but his hand pointing to heaven, is preaching of those truths which make her attendants tremble and turn pale.

No. 82. By Jacob Verryt, Cologne, is a moonlight landscape, in which the castellated rocks, the glimmering of the waters, and the foliage of the scattered firs blend harmoniously together, and produce a scene, wild, lovely, and enchanting.

No. 86 represents the "Austrian Emperor at the battle of Murten," in the seventeenth century. Herring, Germany, artist. This battle scene presents a fine illustration of the weapons used in olden time, and would contrast finely if hung beside a modern battle scene. The ferocious look of the steel-clad Emperor, standing with one foot in a pool of water, and wielding his ponderous sword, his combatants threatening to dash in pieces his helmet with their destructive bludgeons, the battle-axes, and spears, and trumpets, are all so different from the modern modes of warfare, that this painting affords a fine historical study. The old castle, too, which frowns on the adjoining hill, adds to the general effect of the piece. This is the artists chef-d'ouvre.

No. 92 is the "Bass-Rock," Scotland, by Herdorf, of Hamburg. The old rock towering above the ocean, with its summit crowned with a castle, and the storm sweeping over the waves, threatens the laboring ships with immediate destruction. The sky in this painting is too light for a storm-piece.

No. 97 is a landscape by Saal, Germany, representing a stream plunging down a mountain gorge and foaming over the rocks. The sky in this is also defective. We have never seen the rocks in Europe, but those in the paintfng are of a hue far more red than any rocks we have ever seen in similar situations in America.

*Inventors*—A meeting of inventors was held in the Crystal Palace, on Thursday last week, and adjourned over to meet on both Friday and Saturday. The object of the meeting, no doubt was a good one, being for the better protection of the sons of genius. A great number of attempts have been made to establish a National Association of Inventors, but all have ended in disaster, and in not a few cases, disgrace. If all men were actuated by pure and sincere motives, there would be no necessity for such an Association, but the great difficulty is to find men taking the lead in such efforts who have not some sinister motive in view. Many honest inventors were deceived by previous efforts to organize such an Association as this. We hope it may not be so in this instance, and yet from our experience we must warn honest inventors to beware of man-traps. Let none but inventors be members of such an Association, and let every member seek for his own good—for this he joins it—with the full determination, also, to seek the good of his fellow inventors. More on this subject next week.

*Charges for Admission.*—The charge to the Crystal Palace is henceforth reduced to twenty-five cents as fellows:—

1. For associations or companies of Working Men, applying in considerable numbers for admission together;

2. For all persons arriving by excursion trains arranged expressly for visiting the Fair; and

3. For *all* persons, without exception, on each Saturday.

To others than those included above, the charge will be fifty cents each admission as heretofore, and there will be no weekly tickets.

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## TO CORRESPONDENTS.

G. M. M., of Vt.—Blanchard's Patent has about ten years longer to run. There are a number of patents on machines for setting types; we have little faith in any of them.

W. N. S., of N. H.—There is a corn-husking machine on exhibition at the Crystal Palace; but from what little we have seen of it, we have not much confidence in its labor-saving qualities. We do not know the inventors name. You neglected to pay, the postage on your letter; when you ask information you should always pay the expense of obtaining it.

J. H. R., of N. C.—We cannot inform you in regard to the barrel machine. See Hutchinson's advertisement in another column.

M. M. D., of Va.—No one person has the exclusive right to make railroad spikes. There are several patented spike machines, and you are entitled to a patent for such improvements as you invent. Mr. Jackson's statement has been handed to Adams & Co., for attention. We thank you for the fine list of subscribers.

J. B. S., of Pa.—We have referred your letter to an engine builder for his attention.

J. H., of Mich.—Artifical stone is made in this city, but we do not remember the name of the maker,

J. K., of Pa.—After one year has elapsed, subsequent to a declaration of your intentions, you can secure a patent for $30; at present it would cost you $500 for fees. Case hardening iron is done by reducing the prussiate of potash to a paste in a little water, smearing over your article, and heating it in the fire to a dull red heat, and then dip in cold water.

W. C. B., of N. Y.—A perpetual motion caused by the expansion and contraction of mercury by atmospheric changes, is not new, and of no importance.

E. C., of N. Y.—You could not obtain a patent on a machine which has been used since 1837. You had evidently abandoned it.

A. P., of N. J.—Let us have a sketch of your improved cart wheel. We will then examine and report our opinion.

H. M., of Ohio.—Your plan of paddle blade is new, but we cannot see any advantage to be obtained by it. It will be more expensive than the common blade, and must be much easier put out of order.

S. A. C., of Ct.—We are much obliged to you. Any information about the invention and introduction of the friction match, (such a useful invention as it has proved itself to be,) is desirable.

R. D. W., of Geo.—We have received your letter with the samples of silk, which were manufactured by you in Glasgow, Scotland. The only person who conducts the manufacture of silk in our country, with whom we have conversed is Mr. Jones, of Newport, Ky. The company has some very excellent thread, handkerchiefs, and vestings in the Crystal Palace. Perhaps they would like a man like yourself; drop them a line. The firm is Jones & Wilson.

W. E. D., of Pa.—The improvement you propose in scales could not we think be patented. The principal is, the inverse of the spring dial scales now in common use; there is no patentable difference.

R. D. S., of Ky.—Send us a model of your improvements and we will examine them. The description is not clearly given.

I. T., of Ala.—We have none of the instruments mentioned in your letter for sale; they would not answer your purpose.

J. S., of N. Y.—Carefully examine the files of the Scientific American, and you will find the receipt. We cannot point to it without an examination.

C. L. R. Jr., of Ct.—Carriages moved by compressed air are not new.

D. H. Avery, Tuscaloosa, Ala., wants machinery for turning rounds and for planing plough beams; will some of our readers inform him?

N. Y., of Ohio—You speak like one who has the good sense to admire truth by whomsoevor spoken, whether it may please or not; it is a mark of the highest wisdom never to be offended at the truth. The mechanics who say that we "counciled employers to unite and frown down all attempts on the part of the employed to increase their wages," assert that which is not true; we challenge them or any man to find such remarks in the whole of the eight volumes of the Scientific American.

B. C. C., of Mass.—There is nothing new, useful, or patentable in your rotary engine, and we advise you to drop it at once.

I. T., of Ind.—"Bulkley's Patent Steam Kiln Dryer" is a good invention. You must judge whether or not it is worth purchasing.

J. J. H., of Mich.—Your alleged improvement in sewing machines appears to be a mere change in the position of the parts, and the driving mechanism. The change is not patentable.

J. C. R., of Mich.—There are a number of machines for gathering grass seed already patented. We are glad to hear you speak so well of the Scientific American.

E. A. H., of Ill.—A pipe in a stove will admit an hundred or two hundred feet of air per minute, according to the rapidity of combustion. There is no rule with which we are acquainted for calculating the amount of air in cubic feet, that will pass through a given orifice in a stove, the heat being 1141 deg. For more particular information see page 246, Vol. 7—a long article.

R. S. P., of Va.—The standard U. S. bushel measures 2150,42 cubic inches. The old English coal measure was greater than this, as 1,03130 is to 1, but we suppose the standard measure is employed in Virginia, if not, we cannot tell what its capacity may be.

H. Van H., of N. J.—We would not like to use less than 30 horse power for three run of stones. It will require 270 lbs. of coal per hour for this amount of work, with a poor boiler, but only 180 lbs. with a good tubular boiler.

A. M. C. E., of ——,—You cannot get a patent; get the label copy-righted as soon as possible. This is the only protection you can obtain by law. You can sell the secret to whom you please by common bargain. See some remarks on the subject on another page.

G. B. L., of N. Y.—We will endeavor to publish some information about tools for cutting ice.

R. C., of Mass.—If your invention is different from Sanford's, you can secure a patent for it. He cannot cover every means of producing a result—the combination is simply his claim.

M. B., of Ind.—The mere application of any well-known material to a new purpose, is not the subject of a patent—therefore, applying glass or porcelain to monumental purposes, does not constitute a patentable feature.

S. S. R., of Tenn.—The first thing to be done on your part is, to notify each party that you shall hold them responsible for infringing your patent—stating your opinon that they infringe upon your rights. This is preliminary to an application to the U. S. Circuit Court for an injunction.

R. C. W., of Ohio.—We have written to Mr. S. at Washington as you requested.

J. M., of Pa.—There is no novelty in attaching the saw sash directly to the piston of a steam engine. We see nothing patentable in your arrangement of it.

D. S. H., of Ill.—Bulkley has a patent on his "Kiln Dryer." You cannot use what he claims as his invention, without rendering yourself liable. $15 received; we are much obliged.

I. J. W. Adams, Sharpstown, Md., wishes to communicate with W. C. Hughes, author of "The American Miller."

W. L. B., of Mass.—There is no novelty in a fan blower constructed with an air opening in the periphery of the case, for receiving and having a hollow shaft for discharging the air. It may work very well.

M. & N., of Mich.—No more applications for space are to be granted by the Crystal Palace Association. You are rather late for the American Institute also.

F. H. S., of Md.—You had better submit your question to Mr. Bentley, or some other practical engineer in your place. We cannot satisfactorily answer it.

H. Y. A., of Ohio.—You cannot make iron blue by oxydation. It is done by tempering, and for this purpose a paste of the prussiate of potash is used; the heat must be carefully attended to.

J. A. P., of Ala.—The best varnish for iron is red lead laid on first with a very thin coat, left to dry, then give one or two more coats. If you mean a varnish for polished iron, use common gum copal varnish; we do not know of a better, you may mix a little oil in it.

J. C., of Va.—If you are correct, then a locomotive cannot move at all; for if, as you say, the cranks act only in one direction to drive the engine and train, and that their tendency is to retard the forward motion when under the axle, then, as the pressure of the steam is equal for these two opposite directions, the one must nullify the other. You will see that you have not considered the question in all its bearings. The fact is, the power acts to propel the engine equally, both when the cranks are above and below the axle.

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Money received on account of Patent Office business for the week ending Saturday, Oct. 1 :—

J. P., of Ky., $25; W. D., of N. Y., 30; L. P., of Vt., D. W., of N. Y., $40; P. and O., of N. Y., $25; J. H. C., of N. Y., $30; W. E. O., of L. I., $30; D. McM., of Tenn., $45; N. T., of N. Y., $55; D. B. K., of O., $25; G. J. B., of Mass., $30; W. C., of Ga., $10; J. R. A., of N. Y., $30; D. A., of N. Y., $20.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, Oct. 1 :—

A. B. C. of Pa.; R., C., of Pa.; B. D. S., of Pa., (2 cases); P. and O., of N. Y.; D. A., of N. Y.; D. McM., of Tenn.; S. R. H., of O.; R. K., of Mass.; G. J. P., of Mass.

### A Chapter of Suggestions, &c.

☞Any subscribers who have failed to receive either No. 1, 2, or 3 of the present Volume, are requested to make application for them immediately, as those numbers are fast growing short, and it is the desire of the publishers that all subscribers shall receive every number to which they are entitled. Any irregularity in the receipt of papers by clubs, will be promptly corrected by addressing a letter to the publishers.

MISSING NUMBERS—Mail Subscribers who have failed to receive some of the numbers of Vol. 8, are informed that we are able to supply them with any of the numbers, from 1 to 52, EXCEPT the following, and these we are ENTIRELY out of—Nos. 2, 4, 10, 12, 14, 15, 16, 17, 18, 19, 20, 21, 22, 25, 26, 48, 49.

READY FOR DELIVERY—We have just received from the Binders 100 copies of Vol. 8, Scientific American, which will be sold to the first applicants at $2,75 per volume. We also have about 50 complete sets of Volume 8, in sheets, which will be sold at the subscription price—$2 per set. Those who apply first will stand the best chance to get their orders filled, for after the above number are sold no more can be obtained at any price'

TO CORRESPONDENTS.—Condense your ideas into as brief space as possible, and write them out legibly, always remembering to add your name to the communication: anonymous letters receive no attention at this office. If you have questions to ask, do it in as few words as possible, and if you have some invention to describe, come right to the business at the commencement of your letter, and not fill up the best part of your sheet In making apologies for having the presumption to address us. We are always willing to impart information if we have the kind solicited.

PATENT LAWS, AND GUIDE TO INVENTORS—We publish and have for sale, the Patent Laws of the United States—the pamphlet contains not only the laws but all information touching the rules and regulations of the Patent office. Price 12 1-2 cents per copy.

BINDING.—We would suggest to those who desire to have their volumes bound, that they had better send their numbers to this office, and have them executed in a uniform style with their previous volumes. Price of binding 75 cents.

FOREIGN SUBSCRIBERS—Our Canada and Nova Scotia patrons are solicited to compete with our citizens for the valuable prizes offered on the present volume. [It is important that all who reside out of the States should remember to send 25 cents additional to the published rates for each yearly subscriber—that amount we are obliged to pre-pay on postage.]

RECEIPTS—When money is paid at the office for subscriptions, a receipt for it will always be given, but when subscribers remit their money by mail, they may consider the arrival of the first paper a bonafide acknowledgment of the receipt of their funds.

BACK NUMBERS AND VOLUMES—In reply to many interrogatories as to what back numbers and volumes of the Scientific American can be furnished, we make the following statement: Of Vols. 1, 2, 3, and 4—none. Of Vol. 5, all but six numbers, price, in sheets, $1; bound, $1,75. Of Vol. 6, all; price in sheets, $2; bound, $2,75. Of Vol. 7, all; price, in sheets, $2; bound, $2,75. Of Vol. 8, all; price, in sheets, $2; bound, $2,75.

PATENTEES—Remember we are always willing to execute and publish engravings of your inventions, providing they are on interesting subjects, and have never appeared in any other publication. No engravings are inserted in our columns that have appeared in any other journal in this country, and we must be permitted to have the engraving executed to suit our own columns in size and style. Barely the expense of the engraving is charged by us, and the wood-cuts may be claimed by the inventor, and subsequently used to advantage in other journals.

GIVE INTELLIGIBLE DIRECTIONS—We often receive letters with money enclosed, requesting the paper sent for the amount of the enclosure, but no name of State given, and often with the name of the post-office also omitted. Persons should be careful to write their names plainly when they address publishers, and to name the post-office at which they wish to receive their paper, and the State in which the post-office is located.

PATENT CLAIMS—Persons desiring the claim of any invention which has been patented within fourteen years, can obtain a copy by addressing a letter to this office, stating the name of the patentee, and enclosing $1 for fees for copying.

# ADVERTISEMENTS.

**Terms of Advertising.**

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| 4 lines, for each insertion, | | | - - | 75 cts |
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Advertisements exceeding 16 lines cannot be admitted; neither can engravings be inserted in the advertising columns at any price.

☞All advertisements must be paid for before inserting.

## American and Foreign Patent Agency.

**IMPORTANT TO INVENTORS.**—The undersigned having for several years been extensively engaged in procuring Letters Patent for new mechanical and chemical inventions, offer their services to inventors upon the most reasonable terms. All business entrusted to their charge is strictly confidential. Private consultations are held with inventors at their office from 9 A. M., until 4 P. M. Inventors, however, need not incur the expense of attending in person, as the preliminaries can all be arranged by letter. Models can be sent with safety by express, or any other convenient medium. They should not be over 1 foot square in size, if possible.

Having Agents located in the chief cities of Europe, our facilities for obtaining Foreign Patents are unequalled. This branch of our business receives the especial attention of one of the members of the firm, who is prepared to advise with inventors and manufacturers at all times, relating to Foreign Patents.

MUNN & CO., Scientific American Office,
128 Fulton street, New York.

**EUROPEAN PATENTS.**—MESSRS. MUNN & CO. pay especial attention to the procuring of Patents in foreign countries, and are prepared to secure patents in all nations where Patent Laws exist. We have our own special agents in the chief European cities; this enables us to communicate directly with Patent Departments, and to save much time and expense to applicants.

**COCHRAN'S QUARTZ CRUSHER**—These machines having proved by practical operation at various gold mines their superiority over all others, for pulverising Quartz Rock, are recommended with confidence to parties in want of such machinery. A machine can be seen in daily operation in this city, on application to JOHN S. BUSSING & CO.,
4 8t 32 Cliff street, N. Y.

**EUREKA GOLD SEPARATOR**—This machine has been thoroughly tested by scientific and practical gold miners, and pronounced far superior to any Analgamator yet known—an Alalgamator taking up but three feet square, and very trifling power, is capable of amalgamating one ton per hour, with great ease and perfection, without any loss of quicksilver whatever. They are portable, and delivered in boxes ready for shipment. Price $300 each. Further information can be obtained on application to JOHN S. BUSSING & CO.,
4 8t 32 Cliff street, N. Y.

**PATENTS OF INVENTION**—ISAAC B. FUTVOYE, Patent Agent, Quebec, undertakes to procure letters patent of invention for the Province of Canada. I. B. F. will dispose of any kind of Patented Articles on Commission. 4 tf

**NEWELL'S PATENT SAFETY LAMP AND** Lamp Feeder—A new article warranted to prevent all accidents from the use of Burning Fluid, Camphene and other explosive compounds, used for the production of light. For sale, wholesale and retail, by NEWELL, CALDWELL, & COFFIN, 28 Broomfield street, Boston, and by G. W. McCREADY,
4 5t* 426 Broadway, N. Y.

**WINNOWING MACHINES**—State, County, and Town Rights or sale of the Patent Winnowing Machines, illustrated in No. 2, Vol. 9, Scientific American. Address SAMUEL CANBY, Patentee, Ellicott's Mills, Md. 2 4*

UNITED STATES PATENT OFFICE,
Washington, Sept. 17, 1853.

**ON THE PETITION** of James Baldwin, of Nashua, New Hampshire, praying for the extension of a patent granted to him on the thirty-first of January, 1840, for an improvement in shuttles for weaving cloth, for seven years from the expiration of said patent, which takes place on the thirty-first day of January, eighteen hundred and fifty-four—

It is ordered that the said petition be heard at the Patent Office on Monday, the 9th of January next, at 12 o'clock, M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days before the day of hearing; all testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C.; Pennsylvania, Philadelphia, Pennsylvania; Evening Post, and Scientific American, New York; Boston Post, Boston, Massachusetts, and Patriot, Concord, New Hampshire, once a week for three successive weeks previous to the second Monday of January next, the day of hearing.

CHARLES MASON,
Commissioner of Patents.

P. S.—Editors of the above papers will please copy and send their bills to the Patent Office, with a paper containing this notice. 3 3

**MACHINERY.**—S. C. HILLS, No. 12 Platt-st., N. Y. dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills; Kase's, Von Schmidt's and other Pumps; Johnson's Shingle Machines; Woodworth's, Daniel's, and Law's Planing Machines; Dick's Presses, Punches, and Shears; Mortising and Tennoning Machines; Belting; Machinery Oil, Beal's Patent Cob and Corn Mills; Burr Mill and Grindstones; Lead and Iron Pipe, &c. Letters, to be noticed, must be post-paid. 1tf eow

**PLANING, TONGUING, AND GROOVING**—BEARDSLEE'S PATENT.—Practical operation of these Machines throughout every portion of the United States, in working all kinds of wood, has proved them to be superior to any and all others. The work they produce cannot be equalled by the hand plane. They work from 100 to 200 feet, lineal measure, per minute. One machine has planed over twenty millions of feet during the last two years, another more than twelve millions of of feet Spruce flooring in ten months.. Working models can be seen at the Crystal Palace, where further information can be obtained, or of the patentee at Albany, N. Y
1 tf GEO. W. BEARDSLEE.

**A. B. ELY,** Counsellor at Law, 52 Washington street, Boston, will give particular attention to Patent Cases. Refers to Messrs Munn & Co., Scientific American. 16tf

**LEONARD'S MACHINERY DEPOT, 109,** Pearl st., and 60 Beeaver, N. Y.—Leather Banding Manufactory, N. Y.—Machinist's Tools, a large assortment from the "Lowell Machine Shop," and other celebrated makers. Also, a general supply of mechanics' and manufacturers' articles, and a superior quality of oak-tanned Leather Belting. P. A. LEONARD.
1tf

**LOGAN, VAIL & CO.,** No. 9 Gold st., New York,—Agency for Geo. Vail & Co., Speedwell Iron Works, Morristown, N. J., furnish and keep on hand Portable Steam Engines of various sizes, Saw and Grist Mill Irons, Hotchkiss's Water Wheels, Iron Water Wheels of any size, Portable Saw Mills, complete; Bogardus's celebrated Planetary Horse Powers; heaving forgings and castings for steamboats and rolling mills, Ratchet Drills of superior quality for machinists, Saw Gummers, Hand Drills, Tyre Benders, and shafting and machinery generally.
39 1y

**CAUTION.**—The public are hereby cautioned against purchasing or using Steam Gauges constructed on the principle of Fontain Moreau's Patent, or Bourdon's Patent, except that manufactured by the undersigned, who is owner of said patents for the United States. All infringements of said patents will be prosecuted according to law. E. H. ASHCROFT,
Manufacturer of Steam and Water Gauges,
1 4t* No. 4 Beverly street, Boston.

**NORCROSS ROTARY PLANING MACHINE,**—Decided by the Circuit Court not to infringe the Woodworth Machine—I now offer my Planing Machines at a low price; they are not surpassed by any machines as to amount or quality of work. Tongueing and grooving machines also for sale, doing one or both edges as desired; 80 machines now in operation. Address me at Lowell, Mass., N. G. NORCROSS.
40 20*

**ENGINEERING.**—The undersigned is prepared to furnish specifications, estimates, plans in general or detail of steamships, steamboats, propellers, high and low pressure engines, boilers and machinery of every description. Broker in steam vessels, machinery, boilers, &c. General Agent for Ashcroft's Steam and Vacuum Gauges, Allen & Noyes' Metallic, Self-adjusting Conical Packing, Faber's Water Gauge, Sewell's Salinometers, Dudgeon's Hydraulic Lifting Press, Roebling's Patent Wire Rope for hoisting and steering purposes, etc., etc.
CHARLES W. COPELAND,
30 26* Consulting Engineer, 64 Broadway.

**McCALLISTER & BROTHER.**—Opticians and dealers in mathematical instruments, 48 Chesnut st., Philadelphia, Pa. Mathematical instruments separate and in cases, Protractors, Spacing Dividers, Drawing Pens, Ivory Scales, Tape Measures, Salometers, Spy Glasses, Microscopes, Hydrometers, &c., &c. An illustrated and priced catalogue will be sent by mail free of charge. 40 6m*

**MATHEMATICAL OPTICAL INSTRUMENTS.**—The subscriber begs leave to bring to the notice of the professional community, his new and extensive assortment of the above Instruments, which he partly imported direct from the most celebrated makers in Europe and partly had manufactured under his own personal supervision. The undersigned would particularly invite attention to his very large and complete assortment of the justly celebrated Swiss Mathematical Drawing Instruments, for the sale of which in this country he has the sole Agency, and which he can furnish at from $5 to $200 per case. Orders from any part of the Union promptly executed, and price list sent if required.
3 6eow C. T. AMSLER, 224 Chestnut st., Philadelphia.

**VALUABLE WATER POWER FOR SALE**—Situated in Stockport, Columbia Co., N.Y., 1 1-4 miles from a depot on the Hudson River Railroad, on a never-failing stream, now estimated to be of the capacity to run 600 power looms with all necessary machinery, and may be increased; dam built of stone, 19 feet fall. The improvements on one side consists in part of a building of stone and brick 118x47; over-shot wheel, nearly new, 14 feet diameter, 12 feet bucket; on the other, one of stone and wood 60x34, good over-shot wheel 14 feet diam. 7 feet bucket; with about 30 dwellings. Terms accommodating; title indisputable. Possession given immediately. For particulars inquire of R. B. MONELL, of Hudson, N. Y., or H. S. VAN DeCARR on the premises. 3 6*

**PALMER'S PATENT LEG.**—Manufactured by Palmer & Co., at No. 5 Burt's Block, Springfield, Mass., for New England and New York States, and 376 Chesnut street, Philadelphia; in every instance of competition in the Fairs of the various Institutes of this country, it has received the highest awards as "the best" in mechanism, usefulness, and economy. At the "World's Fair," London, 1851, in competition with thirty other varieties of artificial legs, (by the best artists in London and Paris,) it received the Prize Medal as the best. 48 10*

**NORRIS WORKS,** Norristown, Pa. The subscribers build and send to any part of the United States, Pumping, Hoisting, Stamping, and Portable Engines, and Mining Machinery of every description.
41 1y. THOMAS, CORSON & WEST.

**PIG IRON**—The subscriber has always on hand a stock of the best brands of American and Scotch Pig Iron, for sale at the lowest market price. G. O. ROBERTSON, 135 Water st, cor. Pine, N. Y. 1 8*

**AARON KILBORN,** No. 4, Howard street, New Haven, Ct., manufacturer of Steam Engines, Boilers, &c. Noiseless Fan Blower, a superior article, for smith's work, steam engines, brass and iron founders, and machinery in general. 51 10*

**IRON FOUNDERS' MATERIALS,** viz: Pulverized Sea Coal, Black Lead, Soapstone, Anthracite and Charcoal Facings. Also, best imported Fire Bricks, Fire Clay, Fire Sand, and Moulding Sand, for sale by
G. O. ROBERTSON,
1 8t* 135 Water street, corner of Pine.

**STEAM ENGINES AND PUMPS FOR SALE.**—Two new high pressure Steam Engines, 16 inch bore of cylinder and 52 inch stroke of piston, 3 cylinder boilers to each engine 3 feet diameter and 40 feet long. Also two double acting Force Pumps, 10 inch bore and 4 feet stroke, fitted with gun metal valves, valve seats and packing. The above machinery is constructed of the best material and workmanship. Address
BIRKINBINE & TROTTER,
Engineers and Machinists, No. 16 Arch street,
1 4t* Philadelphia.

**ALDEN'S PATENT FAN BLOWER**—Gives a stronger blast, with less power than any other.
2 6* J. B. CHICHESTER, Agent, 585 Broadway, N. Y.

**C. B. HUTCHINSON'S PATENT STAVE** Cutting Machines—The best in use, and applicable alike to thick and thin staves, for barrels, hogsheads, &c.; also his Head Cutting and Turning, and Stave Jointing and Crozing Machines. This machinery reduces the expense of manufacturing at least fifty per cent. For machines or territorial rights, apply to C. B. HUTCHINSON & CO., Syracuse, N. Y. 2tf

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# Scientific Museum.

### Our Sculptors---Patents for Designs.

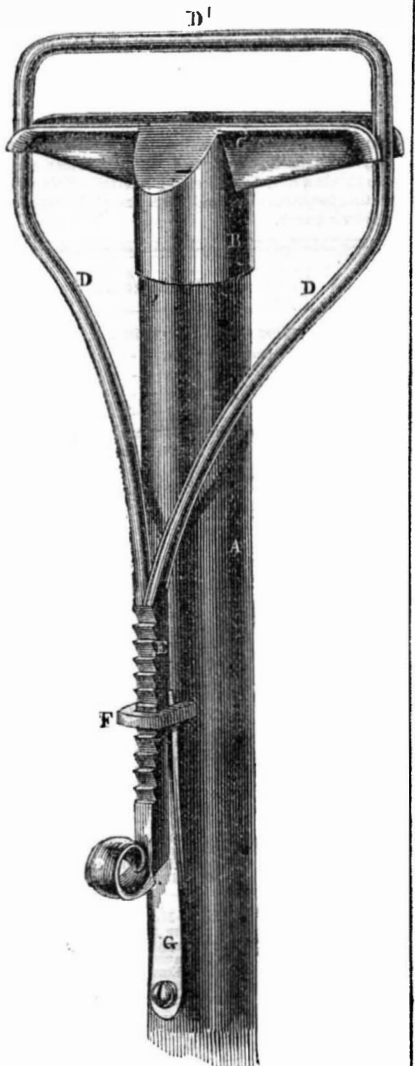
"There are more oppressions among us than we stop to think of. While classes of artizans, under this government of equal rights, are substantially deprived of their rights, year after year, when a half hour on the part of Congress, at any time within the last half century, would have sufficed to correct the evil, and society would not have been injured. We refer particularly to the condition of authors and sculptors. True, authors are allowed to copyright their works at a moderate charge; but as publishers are also allowed to steal freely from all writers, not American, they prefer to do so instead of buying. Sculptors are still worse off. They are allowed, we believe, to enter their designs in the Patent Office, at an expense of thirty dollars and contingencies, and a vexatious loss of time. But this, in most cases, amounts to a total denial of the right of property. Heavy works do not need the shield of the Patent Office, and the lighter ones will not warrant the cost. Let us illustrate: in 1850, a meritorious artist came to this city, from a distance of several hundred miles. His errand was to model the features of a prominent citizen of the Republic, then temporarily a resident among us. Together with others, we watched the slow progress of the work, month after month, until the dead insensible clay had put on the habiliments of life, and stood forth the representative and likeness of one of the first military chieftians of the age. Six months' time, toil, skill, genius, hope, and bread, were all embodied and involved in the production. Why did he not secure it in the Patent Office? He could not wait, and he had no thirty dollars. Copies were produced and put into the market. Ten or fifteen were sold; when other copies made their appearance in the streets, at the mere price of casting, and the sales of the artist were at an end. As justice was administered among us, to sculptors there was no help. Any one was at liberty to make a mould, cast the busts, and sell them.

Again, this same artist is still with us, and about the time of the death of Webster, he produced a fine medallion likeness of the great man. A large number of copies were ordered for New Orleans. They were sent. Some accident delayed their arrival for a few days, and ere they reached their destination the plaster-workers of that city were hawking copies of the work about the streets.

We refer to these incidents in particular, because we happen to know them. Our other sculptors, no doubt, here and elsewhere, could furnish parallels. The question now is, how long is this state of things to continue? Another three-quarters of a century? Or will Congress spend a few minutes in setting it right? A convenient way would be to allow sculptors to register their productions, as books, and maps, and charts are registered."

[The above is taken from one of our city exchanges,—it is not copied by us for the purpose of criticism, but for the correction of error. If the artist spoken of had sent a copy of his bust, when completed, and a drawing of it, with his claims, in proper form, and a fee of $15 (not $30), to the Patent Office, his design would have been protected. There was no necessity *to wait* —not any; the law throws its protective claims around the work of the artist or inventor, from the date of his application; this is our understanding of the 7th section of the Act of March, 1839. In section 255 of "Curtis on Patents," this question is briefly discussed, but is not made clear. If this artist therefore, had made an application for a patent in season, those who copied, sold, and used his busts after his patent was granted, would have been liable to him for damages. It is a pity so many of our people are ignorant of our patent law, and our artists especially, who otherwise would oftener avail themselves of its advantages. Many men suffer from ignorance of the law, and the sculptor spoken of is one of these: this is evident from the language of the paper, through which his complaint has found its way to the public. The present mode provided by our patent laws, for protecting designs, is more convenient than that of registering books; no process can be more simple to be effectual as a protective to stand the test of a trial at law. If our designers and artists were better acquainted with our patent laws, they would no doubt find their pockets somewhat heavier. What signifies the small amount of money required to get a patent, in comparison with the protection it affords against infringers?

### Improved Mop Head.




The annexed engraving is a side view of an improved mop head, for which a patent was granted to Harvey Murch, of Lebanon, N. H., on the 14th of last June.

A is the mop handle; B is an iron socket of cast metal, the top or T part, C, being the under jaw of the mop head; it has a groove along its face, which also forms channel guides to the two branches, D D, of the upper jaw, D'. This upper jaw is formed of a stout piece of steel wire, formed like a stirrup, the two ends of it being welded together at the apex, forming a shank on which are a number of notches, E; this part passes through a catch eye, F. A small flat spring, G, presses on the under side of the shank or notched part, E, making it catch into a notch, and retaining the jaw, D', at any distance near to or remote from the movable jaw, C. By pressing on the knob of the rack part, E, the spring, G, is depressed, and the rack set free from the catch eye, F, to open or close the jaws, to put in or take out the mop. The construction and mode of operating this mop head is easily understood. The improvement is a very simple and good one.

The claim is for "the mop head, composed of the fixed cross-head or jaw, C, with a groove on its face and ends, in combination with its slider binder or movable jaw, D', which terminates in a notched shank, E, and passes through the loop or catch eye, F, on the handle, which serves as a detent, in consequence of the action of the spring, G, on the underside of it."

These mop heads are manufactured by H. & J. Murch, at Lebanon, N. H., from whom more information may be obtained by letter.

The vines in Portugal have been attacked with disease; port wine will be scarce next year; but then there is plenty of logwood, elder-berries, whiskey, and burnt sugar, and it can with these be easily counterfeited.

The great Turkey war has not yet commenced. The Muscovy Bear is equipped for the battle and growls fiercely on the Danube.

### Great Printing Project.

Many of our readers have no doubt seen the notices in some of our daily papers of a great reform in printing, invented by Major Beniowiski, in London. We have received pamphlets and circulars from London, giving an account of his inventions, and of the great company which has been formed for the purpose of carrying them out, and completely reforming the whole art of letter press printing—type composing and impressing. We have long been aware of the inventive qualities of Beniowiski, who is a Polish exile of great ingenuity of mind, and remarkable physical developement of person, which, on one occasion, was the cause of his figuring before a London court for assault and battery on a recreant Pole, and but for the object of bringing out one of his inventions, he perhaps would have been laid "with his feet in the stocks."—The company formed to carry out his printing inventions, has for trustees and directors seven members of Parliament, and many other gentlemen of wealth and standing, and is incorporated with a capital of £130,000 (nearly $650,000).

One feature of the scheme is the re-application of the Logotype, this is to have the type cast in words, instead of letters, as is now the case. This is an old invention, and laid aside more than once, but has been revived again with success in this city for two years by J. Tobbitt, printer; consequently he is ahead of Beniowiski, in this particular; Beniowiski's types, however, are peculiar. They are of two kinds, the choice between which will be determined by circumstances. One kind are single types; to them the inventor has added an arrangement to facilitate their use. This arrangement consists in forming the letter of the type upon its feet and sides, by which the composition can be read as soon as set up, without the necessity of taking a proof. The letter formed upon the type is so placed that when the type is inverted in the composing stick, with the embossed or printing letter removed from the eye of the compositor, it presents itself to his eye in the same relative position with regard to the other letters in the same line with itself as it occupies on the printed page. The back of the type presents letters to the eye in the proper succession for reading off, and if a mistake has been made, the foot letter instantly discloses the fact. The foot letter is always an intaglio, and the metallic surface formed by the feet of the type presents the appearance of an engraving of a page, identical, as regards matter, with what a proof would present. The spaces used in connection with these types are of steel, covered with a thin coating of silver to prevent oxydizing. The logotypes are made the same as the single types, only a word is cast for a letter. The compositor sits at a table, unless he prefers to stand, and the subdivision of the case, when the use of the logographic type renders classification necessary, will form a crescent around him, of which he will, as nearly as possible, occupy the centre of the concavity, and so be enabled to reach any part of the case with equal ease. Each subdivision of the case is a box about two feet high, the interior of which is formed with a number of rows of grooves, which slope forwards towards the compositor.—Each groove is lettered at the front and at the back end of the case; distribution takes place at the back, and composition from the front.—When types are distributed, they fall by their own weight along the sloping to its lower end, where a low ridge or combing prevents t them from falling out, and at the same time admits of the compositor easily seizing them.

The printing machine in connection with this scheme has the following novel features:

The types are imposed on the interior surface of a cylinder, and therefore cannot fall out by their own gravity, nor can they be driven off by the centrifugal force, be the angular and the perimetral velocity ever so great. The feeding and receiving boards, the distributing, inking, and impression rollers, like all the other organs of this machine, are in the interior of a cylinder, and therefore the whole occupies but one-third of the space it would otherwise require. The distance between the feeding and receiving boards is reduced to a few inches. The receiving and depositing of the printed sheets is performed automatically. With this machine the London papers boast that they will be able to beat the fastest American press; but it will take a great deal to *hoe* out Hoe's fastest; time will tell all. Another feature in these improvements is a new description of inking rollers, instead of the old molasses and glue kind. These are merely hollow cylinders, formed of strips of vulcanized india rubber, united in the ordinary manner without a seam. Into the elastic cylinder so formed, air is condensed by means of a pump, and according to the atmospheric pressure produced inside, the rigidity or elasticity of the roller may be made susceptible of the nicest adjustment.

Such rollers are not new in the United States, but we have not been informed of their working and enduring qualities; practice only can prove this. It appears to us that a great improvement has yet to be made in distributing and composing type, but although numerous plans have been brought forward from time to time, to accomplish these objects, no advance has been made for a hundred years.

### LITERARY NOTICES.

THE WORKS OF SHAKSPEARE—Containing nearly twenty thousand manuscript corrections, with a history of the Stage to the time, by J. Payne Collier, F. S. A. This is undoubtedly the most complete and valuable edition of Shakespeare's Works ever issued, hence it must become standard, and we have no doubt thousands of copies will be sold. Number 14 and 15 are issued; one more number completes the series. J. S. Redfield, Publisher, 112 Nassau street, N. Y.

THE BOOK OF NATURE—This is a re-print of a German work, by F. Schoedler, Professor of Natural Sciences at Worms. It is published by Blanchard and Lea, Philadelphia; the printing, paper, and style of binding of the work are excellent. It treats of the Sciences of Physics, Astronomy, Chemistry, Mineralogy, Geology, Botany, Zoology, and Physiology. It is illustrated with nearly 700 engravings, and contains 700 pages of matter. This is an excellent work for young mechanics who wish to obtain a general knowledge of the above sciences, as the author of it appears to have the faculty of making himself clearly understood, and uses no superfluity of language. It has gone through six editions in Germany, and two in England; this is the first American one. It is for sale by John Wiley, Broadway, this city.

PUTNUM'S MAGAZINE—The October number of this unrivalled monthly, has made its appearance brim full of sterling matter as usual. G. P. Putnum, Publisher, 10 Park Place.


MECHANICS

## Manufacturers and Inventors.

The present Volume of the SCIENTIFIC AMERICAN commences under the most gratifying assurances, and appearances indicate a very marked increase to the subscription list. This we regard as a flattering testimonial of the usefulness and popularity of the publication so generously supported. We are greatly indebted to our readers for much valuable matter, which has found a permanent record on its pages. The aid thus contributed has been most important to our success, and we are grateful for it.

From our foreign and home exchanges—from the workshops, fields, aud laboratories of our own country, we have supplied a volume of more than four hundred pages of useful information, touching every branch of art, science, and invention, besides hundreds of engravings executed by artists exclusively in our employ.

The present Volume will be greatly improved in the style and quantity of the Engravings, and in the character of the matter, original and selected. Having every facility for obtaining information from all parts of Europe, we shall lay before our readers, in advance of our cotemporaries, a full account of the most prominent novelties brought forward.

The opening of the Crystal Palace in this city, forms an interesting subject for attraction. We shall study it faithfully for the benefit of our readers, and illustrate such inventions as may be deemed interesting and worthy.

The Scientific American is the Repertory of Patent Inventions: a volume, each complete in itself, forms an Encyclopedia of the useful and entertaining. The Patent Claims alone are worth ten times the subscription price to every inventor.

## PRIZES!! PRIZES!!

The following Splendid Prizes will be given for the largest list of mail subscribers sent in by the first of January next:

| | | | |
|---|---|---|---|
| $100 for the largest list. | | $30 for the 7th largest list. | |
| $75 for the 2d largest list. | | $25 for the 8th | ditto |
| $50 for the 3d | ditto | $20 for the 9th | ditto |
| $45 for the 4th | ditto | $15 for the 10th | ditto |
| $40 for the 5th | ditto | $10 for the 11th | ditto |
| $35 for the 6th | ditto | $5 for the 12th | ditto |

The cash will be paid to the order of the successful competitors immediately after January 1st, 1854.

These prizes are worthy of an honorable and energetic competition, and we hope our readers will not let an opportunity so favorable pass without attention.

**TERMS! TERMS!! TERMS!!!**

| | |
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| One Copy, for One Year | $2 |
| " " Six Months | $1 |
| Five copies, for Six Months | $4 |
| Ten Copies, for Six Months | $8 |
| Ten Copies, for Twelve Months | $15 |
| Fifteen Copies for Twelve Months | $22 |
| Twenty Copies for Twelve Months | $28 |

Southern and Western Money taken at par for Subscriptions, or Post Office Stamps taken at their par value.

Letters should be directed (post-paid) to

MUNN & CO.,
128 Fulton street, New York.


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